UT20736-04523

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

OCT 23 2015

Ref: 8ENF-UFO

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Rodrigo Jurado, Regulatory Compliance Specialist
Petroglyph Operating Company, Inc.
4116 West 3000 South Ioka Lane
P.O. Box 2653
Roosevelt, Utah 84066

Re: Underground Injection Control (UIC)
Change in Maximum Allowable Injection Pressure
Ute Tribal 29-12 Well
EPA Well No. UT20736-04523
EPA Permit No. UT20736-10000
API # 43-013-31797
Antelope Creek Oil Field
Duchesne County, Utah

Dear Mr. Jurado:

On July 6, 2015, the Environmental Protection Agency (EPA) received a letter from Petroglyph Operating Company, Inc. (Petroglyph) requesting a proposed change of the maximum allowable surface injection pressure (MAIP) for the above-referenced well. The proposed change in MAIP included results from a step rate test conducted in two separate parts. Part one of the step rate test, conducted from June 1, 2015 to June 8, 2015, determined data used for the well's matrix slope. Part two of the step rate test, conducted on June 30, 2015, determined data used for the well's fracturing slope. Because the results of the step rate test was conducted in two separate events, the EPA did not approve of the MAIP proposed by Petroglyph.

On September 22, 2015, Petroglyph responded via email with an amended requested for a proposed change in MAIP to 1711 pounds per square inch, gauge (psig). This proposed value was requested because it was the highest stabilized matrix pressure observed during the step rate test and is thus still below the fracture pressure of the injection zone. The EPA has reviewed your request and concurs that the 1711 psig is an acceptable value for the MAIP.

Pursuant to Part II, Section C.5.b of the above referenced permit, the EPA hereby revises the MAIP for the Ute Tribal 29-12 injection well to not exceed **1710** psig. The determination is based on the highest stabilized matrix pressure observed during the step rate test, rounded down to an integer of five.

TAB	GREEN	BLUE	CBI
		1	

Failure to comply with a UIC permit or the UIC regulations found at 40 C.F.R. Parts 144 and 146 constitute one or more violations of the Safe Drinking Water Act, 42 U.S.C. § 300h-2. Such non-compliance may subject you to formal enforcement by the EPA, as codified at 40 C.F.R. Part 22.

If you have any questions concerning this letter, you may contact Gary Wang of my staff at (800) 227-8917, extension 312-6469 or at (303) 312-6469. Please direct all correspondence to the attention of Gary Wang at Mail Code 8ENF-UFO.

Sincerely,

Arturo Palomares, Director
Water Technical Enforcement Program
Office of Enforcement, Compliance
and Environmental Justice

cc: Shaun Chapoose, Chairman, Uintah & Ouray Business Committee
Edred Secakuku, Vice-Chairman, Uintah & Ouray Business Committee
Reannin Tapoof, Executive Assistant, Uintah & Ouray Business Committee

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Sent To Rodrigo Jurado

Regulatory Compliance Specialist

Street, Apt. or PO Box 4116 West 3000 South Ioka Lane

P.O. Box 2653

City, State, Z Roosevelt, UT 84066

PS Form 3800, August 2006 See Reverse for Instructions

UIC ENFORCEMENT ROUTING AND TRANSMITTAL SLIP: UT20736-04523 Petroglyph revised MAIP

		Mailcode	Initials	Date
Gary Wang *(Writer, UIC Enforcement)*	*Phone: 303-312-6469*	8ENF-UFO	GW	10/6/15
Joan Detty *(Administrative)*	*Proof*		JD	10/9/15
Bruce Suchomel *(UIC Permitting)*	*Concurrence*	8PO-W-UIC	BRS	10/13/15
Kimberly Pardue-Welch *(UIC Enforcement, Team Leader)*		8ENF-UFO	KPW	10/13/15
Art Palomares *(Director, Water Technical Enforcement Program)*	***Signature***	8ENF	AP	10/23/15
Joan Detty *(Administrative)*	*- (Mail & Fax) -*		JD	10/23/15
Writer	*file documents*	8P-R		

☐ Action	☐ File	☐ Note and Return
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☐ As Requested	☐ For Correction	☐ Prepare Reply
☐ Circulate	☐ For Your Information	☐ See Me
☐ Comment	☐ Investigate	☒ Signature
☐ Coordination	☐ Justify	

REMARKS

Petroglyph is requesting revision of the MAIP for the Tribal Ute #29-12 well.

G:\UFO\UIC\UIC VITAL RECORDS\UIC CORRESPONDENCE\FY15\Petroglyph\UT20736-04523 - (2015.10.06) MAIP change.docx

Before signature by the appropriate official, this enforcement matter requires confirmation by TEP and/or LEP staff that either: 1) it contains no information claimed to be Confidential Business Information (CBI); or 2) any such information has been redacted from any version of the document which may be distributed to anyone other than U.S. government personnel or the party claiming the information to be CBI. In addition, if there is a CBI claim, that fact must be noted prominently on the first page of the document. Initialing the slip above constitutes such confirmation by the ECEJ staff assigned to this matter.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Re: Underground Injection Control (UIC)
Change in Maximum Allowable Injection Pressure
Ute Tribal 29-12 Well
EPA Well No. UT20736-04523
EPA Permit No. UT20736-10000
API # 43-013-31797
Antelope Creek Oil Field
Duchesne County, Utah

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Pursuant to Part II, Section C.5.b of the above referenced permit, the EPA hereby revises the MAIP for the Ute Tribal 29-12 injection well to not exceed **1710** psig. The determination is based on the highest stabilized matrix pressure observed during the step rate test, rounded down to an integer of five.

CONCUR	Author + ext. (print)	Initial + last name	J. Detty	B. Suchomel	KPW					
		Office code	8ENF-UFO	8P-W-UIC	8ENF-W					
		Date	10/9/15	10/13/15	10/13/15					

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Sincerely,

Arturo Palomares, Director
Water Technical Enforcement Program
Office of Enforcement, Compliance
and Environmental Justice

cc: Shaun Chapoose, Chairman, Uintah & Ouray Business Committee
Edred Secakuku, Vice-Chairman, Uintah & Ouray Business Committee
Reannin Tapoof, Executive Assistant, Uintah & Ouray Business Committee

bcc: Randy Brown (8P-TA)
Kimberly Pardue-Welch (8ENF-W)
Gary Wang (8ENF-UFO)

Cc addresses:

Shaun Chapoose, Chairman
Uintah & Ouray Business Committee
P.O. Box 70
Fort Duchesne, Utah 84026

Edred Secakuku, Vice-Chairman
Uintah & Ouray Business Committee
P.O. Box 70
Fort Duchesne, Utah 84026

Reannin Tapoof, Executive Assistant
Uintah & Ouray Business Committee
P.O. Box 70
Fort Duchesne, Utah 84026

Wang, Gary

From: Wang, Gary
Sent: Friday, September 11, 2015 2:35 PM
To: 'Rodrigo Jurado'
Cc: Breffle, Don; Pardue-Welch, Kimberly; Suchomel, Bruce; Gallant, William
Subject: Step rate test for Petroglyph's Ute Tribal 29-12 injection Well (EPA ID UT20736-04523

HI Rodrigo,

Per our conversation yesterday, Petroglyph submitted a step-rate test for the Ute Tribal 29-12 injection well in July 1, 2015. The step rate test conducted by Petroglyph was performed in two test events. The first event was conducted with fluid injected from the water plant pump, and a slope of a plot of pressure versus rate showed that the injection pressure remained below fracture parting pressure. The second event was conducted several weeks later with water injected from a hot oiler truck and a second slope was generated and assumed to be above fracture parting pressure because of the result of a different slope. The intersection for the two slopes were assumed by Petroglyph to be the well's surface fracture pressure.

Based on the review of the data, EPA is not approving the step rate test results based on the following reason:

- A breakdown point was not observed in either event. Because of the two separate events, the result from Petroglyph appear as two disparate slopes used to extrapolate the fracture pressure. Additionally, experimental conditions (e.g., fluid characteristics) may have changed between the two testing events.

We would like to see the step rate test be retested with the following conditions:

- The step rate test is to be conducted where the plot of the pressure versus rate is experimentally collected in one continuous event, beginning from below the fracture parting pressure, through the breakdown point, and into the above fracture parting pressure.
- After additional discussion with others in the office, we would also like to see both surface and bottom-hole pressures to be observed during the step rate test.

Please let me know if you have any questions.

Gary Wang
Underground Injection Control Enforcement
U.S. Environmental Protection Agency
1595 Wynkoop St.
Denver, CO 80202
PH: 303-312-6469
FAX: 303-312-6953
EMAIL: wang.gary@epa.gov

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
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Phone 800-227-8917
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MAY 19 2015

Ref: 8ENF-UFO

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Petroglyph Operating Company, Inc.
4116 West 3000 South Ioka Lane
P.O. Box 2653
Roosevelt, Utah 84066

Re: Underground Injection Control (UIC)
Requirement to Conduct Step-Rate Test
Ute Tribal 29-12 Well
EPA Well No. UT20736-04523
EPA Permit No. UT20736-10000
API # 43-013-31797
Antelope Creek Oil Field
Duchesne County, Utah

Dear Mr. Jurado:

On March 30, 2015, the Environmental Protection Agency (EPA) received a letter from Petroglyph Operating Company, Inc. (Petroglyph) regarding the proposed workover plan to address a loss of mechanical integrity for the above-referenced well. The proposed plan includes new perforations at intervals up to 4126 feet, while the current highest perforation for the well is at 4600 feet. These new perforations will constitute a shallower well depth of 474 feet above your current highest perforation. Because perforations are planned at a shallower level for the well, the EPA requires well specific information to ensure that the current maximum allowable injection pressure (MAIP) is appropriate with the new perforations.

Pursuant to Part II.C.5 of the above referenced UIC permit and the regulations at 40 C.F.R. § 144.51(h), a step-rate injection test shall be performed, following current EPA guidance, to determine the fracture gradient of the injection zone. The step-rate test shall be conducted with both surface and bottom-hole pressure gauges. The fracture gradient will be used to recalculate the MAIP for the well and the EPA will notify Petroglyph in writing of the revised MAIP. Demonstration of mechanical integrity must be presented to the EPA before initiating the step-rate test. Upon satisfactory completion of the step-rate test, injection must cease until a new MAIP is calculated. Within thirty (30) days after completion of the step-rate test, please complete and submit to the EPA the test results.

TAB	GREEN	BLUE	CBI
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If you have any questions concerning this letter, you may contact Gary Wang at (303) 312-6469. Please direct all correspondence to the attention of Gary Wang at Mail Code 8ENF-UFO.

Sincerely,

for Arturo Palomares, Director
Water Technical Enforcement Program
Office of Enforcement, Compliance
and Environmental Justice

cc: Gordon Howell, Chairman, Uintah & Ouray Business Committee
Ronald Wopsock, Vice-Chairman, Uintah & Ouray Business Committee
Reannin Tapoof, Executive Assistant, Uintah & Ouray Business Committee
Stewart Pike, Councilman, Uintah & Ouray Business Committee
Tony Small, Councilman, Uintah & Ouray Business Committee
Bruce Ignacio, Councilman, Uintah & Ouray Business Committee
Phillip Chimburas, Councilman, Uintah & Ouray Business Committee
Manuel Myore, Director of Energy, Minerals and Air Programs
Brad Hill, Utah Division of Oil, Gas and Mining

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1. Article Addressed to:

Rodrigo Jurado, Reg. Compliance Specialist
Petroglyph Operating Company, Inc.
4116 West 3000 South Ioka Lane
P.O. Box 2653
Roosevelt, UT 84066

COMPLETE THIS SECTION ON DELIVERY

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X Rodrigo Jurado ☐ Agent ☐ Addressee

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Petroglyph Operating Company, Inc.
Street, A 4116 West 3000 South Ioka Lane
or PO Bo P.O. Box 2653
City, State, ZIP+4 Roosevelt, UT 84066

PS Form 3800, August 2006 See Reverse for Instructions

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Petroglyph Operating Company, Inc.
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Roosevelt, Utah 84066

CONCURRENCE COPY

Re: Underground Injection Control (UIC)
Requirement to Conduct Step-Rate Test
Ute Tribal 29-12 Well
EPA Well No. UT20736-04523
EPA Permit No. UT20736-10000
API # 43-013-31797
Antelope Creek Oil Field
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Office of Enforcement, Compliance
and Environmental Justice

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Brad Hill, Utah Division of Oil, Gas and Mining

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cyfw 8ENF-UFO 5/14/15

KPW 8ENF-W 5/14/15

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Manuel Myore, Director of Energy, Minerals and Air Programs
Brad Hill, Utah Division of Oil, Gas and Mining

UIC ENFORCEMENT ROUTING AND TRANSMITTAL SLIP: UT20736-04523 Petroglyph requirement to conducts step-rate test.

		Mailcode	Initials	Date
Gary Wang *(Writer, UIC Enforcement)*	*Phone: 303-312-6469*	8ENF-UFO	GW	5/14/15
Joan Detty *(Administrative)*	*Proof*		JD	5/14/15
Kimberly Pardue Welch *(UIC Enforcement, Team Leader)*		8ENF-UFO	KPW	5/15/15 w/ mw edit
Art Palomares *(Director, Water Technical Enforcement Program)*	***Signature***	8ENF		
Joan Detty *(Administrative)*	*- (Mail & Fax) -*		JD	5/19/15
Writer	*file documents*	8P-R		

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☐ As Requested	☐ For Correction	☐ Prepare Reply
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☐ Comment	☐ Investigate	☒ Signature
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REMARKS

Petroglyph is performing workover to include new perforations on their Tribal Ute #29-19 well. EPA is requiring a step rate test to determine a revised MAIP as a result of these physical alterations.

G:\UFO\UIC\UIC VITAL RECORDS\UIC CORRESPONDENCE\FY15\Petroglyph\ UT20736-04523 - (2015.04.08) Requirement to conduct SRT.docx

Before signature by the appropriate official, this enforcement matter requires confirmation by TEP and/or LEP staff that either: 1) it contains no information claimed to be Confidential Business Information (CBI); or 2) any such information has been redacted from any version of the document which may be distributed to anyone other than U.S. government personnel or the party claiming the information to be CBI. In addition, if there is a CBI claim, that fact must be noted prominently on the first page of the document. Initialing the slip above constitutes such confirmation by the ECEJ staff assigned to this matter.

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JUN 0 2 2015

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Rodrigo Jurado, Regulatory Compliance Specialist
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4116 West 3000 South Ioka Lane
P.O. Box 2653
Roosevelt, Utah 84066

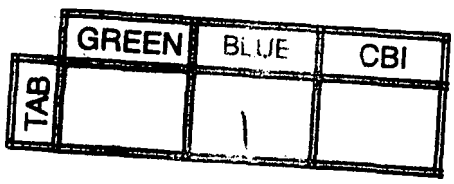
Re: Underground Injection Control (UIC)
Permission to Resume Injection
EPA Well No. UT20736-04523
EPA Permit No. UT20736-10000
API # 43-013-31797
Antelope Creek Oil Field
Duchesne County, Utah

Dear Mr. Jurado:

On May 21, 2015, the Environmental Protection Agency (EPA) received information from Petroglyph Operating Company, Inc. (Petroglyph) on the above referenced well concerning the workover to address a loss of mechanical integrity and the followup mechanical integrity test (MIT) conducted on May 20, 2015. The data submitted shows that the well passed the required MIT. Therefore, pursuant to Title 40 of the Code of Federal Regulations Section 144.51(q)(2) (40 C.F.R. § 144.51(q)(2)), permission to resume injection is granted. Under continuous service, the next MIT will be due on or before May 20, 2020.

Pursuant to 40 C.F.R. § 144.52(a)(6), if the well is not used for a period of at least two (2) years ("temporary abandonment"), it shall be plugged and abandoned unless the EPA is notified and procedures are described to the EPA ensuring the well will not endanger underground sources of drinking water ("non-endangerment demonstration") during its continued temporary abandonment. A successful MIT is an acceptable non-endangerment demonstration and would be necessary every two (2) years the well continues in temporary abandonment.

Failure to comply with a UIC Permit, or the UIC regulations found at 40 C.F.R. Parts 144 through 148 constitute one or more violations of the Safe Drinking Water Act, 42 U.S.C. § 300h. Such non-compliance may subject you to formal enforcement by the EPA, as codified at 40 C.F.R. Part 22.



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Regulatory Compliance Specialist
Petroglyph Operating Company, Inc.
4116 West 300 South Ioka Lane
P.O. Box 2653
Roosevelt, UT 84066

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Rodrigo Jurado ☐ Agent ☐ Addressee

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4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7008 3230 0003 0724 6331

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

7008 3230 0003 0724 6331

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Restricted Delivery Fee (Endorsement Required)
Total

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Rodrigo Jurado
Regulatory Compliance Specialist
Petroglyph Operating Company, Inc.
4116 West 300 South Ioka Lane
P.O. Box 2653
Roosevelt, UT 84066

Sent To
Street, or PO
City, St

PS Form 3800, August 2006 See Reverse for Instructions

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

Ref: 8ENF-UFO

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Rodrigo Jurado, Regulatory Compliance Specialist
Petroglyph Operating Company, Inc.
4116 West 3000 South Ioka Lane
P.O. Box 2653
Roosevelt, Utah 84066

Re: Underground Injection Control (UIC)
Permission to Resume Injection
EPA Well No. UT20736-04523
EPA Permit No. UT20736-10000
API # 43-013-31797
Antelope Creek Oil Field
Duchesne County, Utah

Dear Mr. Jurado:

On May 21, 2015, the Environmental Protection Agency (EPA) received information from Petroglyph Operating Company, Inc. (Petroglyph) on the above referenced well concerning the workover to address a loss of mechanical integrity and the followup mechanical integrity test (MIT) conducted on May 20, 2015. The data submitted shows that the well passed the required MIT. Therefore, pursuant to Title 40 of the Code of Federal Regulations Section 144.51(q)(2) (40 C.F.R. § 144.51(q)(2)), permission to resume injection is granted. Under continuous service, the next MIT will be due on or before May 20, 2020.

Pursuant to 40 C.F.R. § 144.52(a)(6), if the well is not used for a period of at least two (2) years ("temporary abandonment"), it shall be plugged and abandoned unless the EPA is notified and procedures are described to the EPA ensuring the well will not endanger underground sources of drinking water ("non-endangerment demonstration") during its continued temporary abandonment. A successful MIT is an acceptable non-endangerment demonstration and would be necessary every two (2) years the well continues in temporary abandonment.

Failure to comply with a UIC Permit, or the UIC regulations found at 40 C.F.R. Parts 144 through 148 constitute one or more violations of the Safe Drinking Water Act, 42 U.S.C. § 300h. Such non-compliance may subject you to formal enforcement by the EPA, as codified at 40 C.F.R. Part 22.

If you have any questions concerning this letter, you may contact Gary Wang at (303) 312-6469. Please direct all correspondence to the attention of Gary Wang at Mail Code 8ENF-UFO.

Sincerely,

Arturo Palomares, Director
Water Technical Enforcement Program
Office of Enforcement, Compliance
and Environmental Justice

cc: Gordon Howell, Chairman, Uintah & Ouray Business Committee
Ronald Wopsock, Vice-Chairman, Uintah & Ouray Business Committee
Reannin Tapoof, Executive Assistant, Uintah & Ouray Business Committee
Stewart Pike, Councilman, Uintah & Ouray Business Committee
Tony Small, Councilman, Uintah & Ouray Business Committee
Bruce Ignacio, Councilman, Uintah & Ouray Business Committee
Phillip Chimburas, Councilman, Uintah & Ouray Business Committee
Manuel Myore, Director of Energy, Minerals and Air Programs
Brad Hill, Utah Division of Oil, Gas and Mining

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

Ref: 8ENF-UFO

Remove

CERTIFIED MAIL [insert certified mail article number]
RETURN RECEIPT REQUESTED

Remove

[Rodrigo Jurado, Regulatory Compliance Specialist
Petroglyph Operating Company, Inc.
4116 West 3000 South Ioka Lane
P.O. Box 2653
Roosevelt, Utah 84066

Re: Underground Injection Control (UIC)
Permission to Resume Injection
EPA Well No. UT20736-04523
EPA Permit No. UT20736-10000
API # 43-013-31797
Antelope Creek Oil Field
Duchesne County, Utah

CONCURRENCE COPY

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8ENF-UFO 5/27/15

If you have any questions concerning this letter, you may contact Gary Wang at (303) 312-6469. Please direct all correspondence to the attention of Gary Wang at Mail Code 8ENF-UFO.

Sincerely,

Arturo Palomares, Director
Water Technical Enforcement Program
Office of Enforcement, Compliance
and Environmental Justice

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Brad Hill, Utah Division of Oil, Gas and Mining

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Phillip Chimburas, Councilman, Uintah & Ouray Business Committee
Manuel Myore, Director of Energy, Minerals and Air Programs
Brad Hill, Utah Division of Oil, Gas and Mining

bcc: ~~Jennifer Harris~~ RANDY BROWN (8P-TA)
Kimberly Pardue-Welch (8ENF-W)

Cc addresses:

Gordon Howell, Chairman
Uintah & Ouray Business Committee
P.O. Box 70
Fort Duchesne, Utah 84026

Ronald Wopsock, Vice-Chairman
Uintah & Ouray Business Committee
P.O. Box 70
Fort Duchesne, Utah 84026

Reannin Tapoof, Executive Assistant
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Phillip Chimburas, Councilman
Uintah & Ouray Business Committee
P.O. Box 70
Fort Duchesne, Utah 84026

Manuel Myore, Director of Energy,
Minerals and Air Programs
Ute Indian Tribe
P.O. Box 70
Fort Duchesne, Utah 84026

Brad Hill
Utah Division of Oil, Gas and Mining
P.O. Box 145801
Salt Lake City, Utah 84114

UIC ENFORCEMENT ROUTING AND TRANSMITTAL SLIP: UT20736-04523 Petroglyph Permission to reinject

		Mailcode	Initials	Date
Gary Wang *(Writer, UIC Enforcement)*	*Phone: 303-312-6469*	8ENF-UFO	GW	5/27/15
Joan Detty *(Administrative)*	*Proof corrections*		JD	5/27/15
Kimberly Pardue Welch *(UIC Enforcement, Team Leader)*		8ENF-UFO	KPW	5/28/15
Art Palomares *(Director, Water Technical Enforcement Program)*	***Signature***	8ENF	AP	5/29/15
Joan Detty *(Administrative)*	*- (Mail & Fax) -*		JD	6/2/15
Writer	*file documents*	8P-R		

☐ Action	☐ File	☐ Note and Return
☐ Approval	☐ For Clearance	☐ Per Conversation
☐ As Requested	☐ For Correction	☐ Prepare Reply
☐ Circulate	☐ For Your Information	☐ See Me
☐ Comment	☐ Investigate	☒ Signature
☐ Coordination	☐ Justify	

REMARKS

Petroglyph has performed a passing MIT and authorizing reinjection for the Tribal Ute #29-19 well.

G:\UFO\UIC\UIC VITAL RECORDS\UIC CORRESPONDENCE\FY15\Petroglyph\UT20736-04523 - (2015.05.27) Permission to Reinject.doc

Before signature by the appropriate official, this enforcement matter requires confirmation by TEP and/or LEP staff that either: 1) it contains no information claimed to be Confidential Business Information (CBI); or 2) any such information has been redacted from any version of the document which may be distributed to anyone other than U.S. government personnel or the party claiming the information to be CBI. In addition, if there is a CBI claim, that fact must be noted prominently on the first page of the document. Initialing the slip above constitutes such confirmation by the ECEJ staff assigned to this matter.

Wang, Gary

From: Wang, Gary
Sent: Monday, March 30, 2015 8:31 AM
To: 'rjuarado@pgei.com'
Subject: FW: Petroglyph Tribal Ute #29-19 perforation plans

Rodrigo,

I tried sending this out last week before leaving the office for the remainder of the week. Looks like I mis-spelled your email address. See email below, and let me know if you have any questions. I can also give you a call later this afternoon.

Gary Wang
Underground Injection Control Enforcement
U.S. Environmental Protection Agency
1595 Wynkoop St.
Denver, CO 80202
PH: 303-312-6469
FAX: 303-312-6953
EMAIL: wang.gary@epa.gov

From: Wang, Gary
Sent: Wednesday, March 25, 2015 5:36 PM
To: 'rjuarado@pgei.com'
Cc: Pardue-Welch, Kimberly; Breffle, Don; Suchomel, Bruce
Subject: Petroglyph Tribal Ute #29-19 perforation plans

Hi Rodrigo,

I wanted to write an email to discuss the process for the work over plans you have for Petroglyph's Ute Tribal 29-12 well. Since the workover plan has not yet been received by EPA, I'm prefacing this discussion by saying that these comments are preliminary and not official. Based on the conversation we've had on the phone, it sounds like the plan for Ute Tribal #29-12 is to perforate the wells at a shallower depth at approximately 470 feet above your current highest perforations, and Petroglyph wants to know if any additional approvals is needed from EPA.

I checked the permit for the well, and confirmed that the new perforations will be within the permitted injection zone. The permit also indicated that work over plans need to be submitted to EPA 30 days in advance but does not require any action by EPA for Petroglyph to conduct the work over. The permit does require that work over records be submitted to EPA and that the well demonstrates mechanical integrity afterwards. So we anticipate work over record and MIT test submittals. This was the extent of our conversation yesterday.

After deliberating with some colleagues today, I was reminded that since the well is from an older permit, I also need to look at the MAIP pressure, to see whether the MAIP was calculated based on the top of perforation or the top of the injection interval. If the MAIP was calculated based on the top of perforation, then it would need to be re-evaluated. As it turns out, the permit information indicated that the MAIP was calculated from neither, but from information based on another well, Tribal Ute #4-7 (formerly named: Tribal Ute #2-4). Currently, EPA would still allow the use this other well's information if it was in close proximity (approximately ½ mile) to the Tribal Ute #29-12 well. Unfortunately, I checked the distance, and the wells are approximately 4.5 miles away from each other.

Because Petroglyph plans to perforate at a much shallower level for Tribal Ute #29-12, EPA will have to look at well specific information to re-evaluate its MAIP. Petroglyph will have to conduct a step rate test on the well to determine the fracture gradient for the shallower perforations, which could then be used to calculate the well's new MAIP.

Because a new MAIP will be calculated, I had some initial questions on major permit modification is required, which involves a 30 day public comment period. I consulted additional colleagues in the UIC program and we took another look at the permit language again. So after another visit, it looks like we can update the MAIP without a major permit modification after all, which is good news for you guys.

Long story short, in terms of process, after EPA receives and review you work over plan, we will send a letter out to you requesting a step rate test be conducted after the well has been perforated so we can determine a new MAIP for the well. Additionally, we would want an MIT test to make sure the well has mechanical integrity before we re-authorized injection. I can also discuss this in more detail if you have any questions.

Gary Wang
Underground Injection Control Enforcement
U.S. Environmental Protection Agency
1595 Wynkoop St.
Denver, CO 80202
PH: 303-312-6469
FAX: 303-312-6953
EMAIL: wang.gary@epa.gov

Inspection Report For Well: UT20736 - 04523

U.S. Environmental Protection Agency
Underground Injection Control Program, 8ENF-T
999 18th Street, Suite 300, Denver, CO 80202-2466

This form was printed on 9/24/2013

INSPECTOR(S): Lead: Roberts, Sarah — Date: ~~10~~ 12/ ~~0~~ /2013

Others: Ajayi, Christopher — Time: 1:25 am / pm

OPERATOR (only if different): _____

REPRESENTATIVE(S): Chad Steinson

PRE-INSPECTION REVIEW

Petroglyph Operating Company, Inc

Well Name:	Ute Tribal 29-12		
Well Type:	Enhanced Recovery (2R)		
Operating Status:	AC (ACTIVE) as of 12/31/2002		
Oil Field:	Antelope Creek (Duchesne)		
Location:	NWSW S29 T5S R3W		
Indian Country:	X, Uintah and Ouray		
Last Inspection:	7/13/2010	***Allowable Inj Pressure:***	1900 /
Last MIT:	Pass 10/25/2010	***Annulus Pressure From Last MIT:***	1810

BLACK = POSSIBLE VIOLATION GREY = DATA MISSING

INSPECTION TYPE: (Select One)

- ☐ Construction / Workover
- ☐ Plugging
- ☐ Post-Closure
- ☐ Response to Complaint
- ☒ Routine
- ☐ Witness MIT
- ☐ Other

ICIS Entered
Date 12/27/13
Initials DJ

OBSERVED VALUES:

Tubing Gauge:	☒ Yes ☐ No	Pressure: U: 1875 L: ____ psig	Gauge Range: Surda psig	Gauge Owner:	☐ EPA ☒ Operator
Annulus Gauge:	☒ Yes ☐ No	Pressure: 0 psig	Gauge Range: opened psig	Gauge Owner:	☒ EPA ☐ Operator
Bradenhead Gauge:	☐ Yes ☐ No	Pressure: ____ psig	Gauge Range: ____ psig	Gauge Owner:	☐ EPA ☐ Operator
Pump Gauge:	☐ Yes ☐ No	Pressure: ____ psig	Gauge Range: ____ psig	Gauge Owner:	☐ EPA ☐ Operator

Operating Status: (Select One)
☒ Active ☐ Being Reworked ☐ Not Injecting ☐ Production ☐ Plugged and Abandoned ☐ Under Construction

U2 Entered
Date 12/17/13
Initial JR

See page 2 for photos, comments, and site conditions.

GREEN	BLUE	CBI
	1	

Inspection Report For Well: UT20736 - 04523 (PAGE 2)

PHOTOGRAPHS: ☐ Yes ☒ No List of photos taken: _____

Comments and site conditions observed during inspection: _____

GPS: GPS File ID: _____

Signature of EPA Inspector(s): _____ _____

☐ Data Entry ☐ Compliance Staff ☐ Hard Copy Filing

NOTICE OF INSPECTION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, 999 18TH STREET - SUITE 500
DENVER, COLORADO 80202-2405

Date: 12/10/13
Hour: 8:00a

Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300f et seq.).

Firm Name: Petroglyph Operating, Inc.

Firm Address: Roosevelt, UT, Antelope Creek Oil Field

REASON FOR INSPECTION:

For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable condition of permit or rule authorization.

SECTION 1445(b) of the SAFE DRINKING WATER ACT is quoted below:

Section 1445(b)(1): Except as provided in Paragraph (2), the Administrator, or representatives of the Administrator duly designated by him, upon presenting appropriate credentials, and a written notice to any supplier of water or other person subject to (a), or person subject (A) a national primary drinking water regulation prescribed under Section 1412(B) an applicable Underground Injection Control Program, or (C) any requirement to monitor an unregulated contaminant pursuant to subsection (a), or person in charge of any of the property of such supplier or other person referred to in clause (A), (B), or (C), is authorized to enter any establishment, ... facility, or other property of such supplier or other person in order to determine whether such supplier or other person has acted or is acting in compliance with this title, including for this purpose, inspection, at reasonable times, of records, files, papers, processes, controls, and facilities, or in order to test any feature of a public water system, including its raw water source. The Administrator or the Comptroller General (or any representative designated by either) shall have access for the purpose of audit and examination to any records, reports, or information of a grantee which are required to be maintained under subsection (a) or which are pertinent to any financial assistance under this title.

Sarah Roberts
Inspector's Name & Title (Print)

Inspector's Signature

EPA R8 3560-1 (8-89)

Original - Regional Office Copy
Yellow Copy - Operator Copy

OMB No. 2040-0042 Approval Expires 11/30/2014

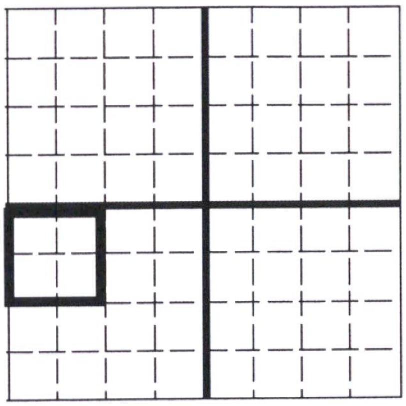
EPA

United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee	Name and Address of Surface Owner
Petroglyph Operating Company, Inc. 2258 P.O. Box 7608 Boise, Idaho 83709	Ute Indian Tribe P.O. Box 70 Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-04523

Surface Location Description

___ 1/4 of ___ 1/4 of NW 1/4 of SW 1/4 of Section 29 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface
Location 1865 ft. frm (N/S) S Line of quarter section
and 699 ft. from (E/W) W Line of quarter section.

WELL ACTIVITY
- [ ] Brine Disposal
- [x] Enhanced Recovery
- [ ] Hydrocarbon Storage

TYPE OF PERMIT
- [ ] Individual
- [x] Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 29-12

MONTH	YEAR	INJECTION PRESSURE AVERAGE PSIG	INJECTION PRESSURE MAXIMUM PSIG	TOTAL VOLUME INJECTED BBL	TOTAL VOLUME INJECTED MCF	TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING) MINIMUM PSIG	TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING) MAXIMUM PSIG
January	16	1645	1668	34		0	0
February	16	1632	1678	45		0	0
March	16	1642	1681	61		0	0
April	16	1615	1655	58		0	0
May	16	1652	1672	82		0	0
June	16	1640	1680	63		0	0
July	16	1620	1645	42		0	0
August	16	1644	1663	58		0	0
September	16	1648	1681	55		0	0
October	16	1602	1602	50		0	0
November	16	1497	1528	0		0	0
December	16	1615	1678	104		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possiblity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor	[signature]	03/21/2017

EPA Form 7520-11 (Rev. 12-11)

GREEN BLUE ODI
TA
2

U2 Entered
Date 6/4/17
Initial [initials]

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

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A HALLIBURTON SERVICE

Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**UTE TRIBAL 29-12 INJ, DUCHESNE**	Lab Tech:	**Kaitlyn Natelli**
Sample Point:	**Well Head**		
Sample Date:	**1/3/2017**		
Sample ID:	**WA-344969**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics

Test Date:	1/9/2017
System Temperature 1 (°F):	60
System Pressure 1 (psig):	2000
System Temperature 2 (°F):	180
System Pressure 2 (psig):	50
Calculated Density (g/ml):	1.0040
pH:	8.32
Calculated TDS (mg/L):	9704.69
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	10.00
Tot. SuspendedSolids(mg/L):	
Corrosivity(LangliersSat.Indx)	0.00
Alkalinity:	

Analysis @ Properties in Sample Specifics

Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	3316.55	Chloride (Cl):	4000.00
Potassium (K):	25.35	Sulfate (SO_4):	40.00
Magnesium (Mg):	17.04	Bicarbonate (HCO_3):	2196.00
Calcium (Ca):	32.39	Carbonate (CO_3):	
Strontium (Sr):	4.67	Hydroxide(HO):	
Barium (Ba):	11.65	Acetic Acid (CH_3COO)	
Iron (Fe):	27.20	Propionic Acid (C_2H_5COO)	
Zinc (Zn):	15.03	Butanoic Acid (C_3H_7COO)	
Lead (Pb):	0.00	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Ammonia NH_3:		Fluoride (F):	
Manganese (Mn):	0.26	Bromine (Br):	
Aluminum (Al):	0.00	Silica (SiO_2):	18.55
Lithium (Li):	3.55	Calcium Carbonate ($CaCO_3$):	
Boron (B):	4.68	Phosphates (PO_4):	9.99
Silicon (Si):	8.67	Oxygen (O_2):	

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	1.66	27.29	0.80	5.62	4.31	9.06	3.79	19.78	0.00	0.00	0.00	0.00	0.00	0.00	11.03	7.85
167.00	267.00	1.57	26.96	0.82	5.69	4.28	9.06	3.68	19.77	0.00	0.00	0.00	0.00	0.00	0.00	11.13	7.85
153.00	483.00	1.49	26.67	0.86	5.78	4.28	9.06	3.58	19.77	0.00	0.00	0.00	0.00	0.00	0.00	11.27	7.85
140.00	700.00	1.42	26.33	0.90	5.88	4.29	9.06	3.48	19.77	0.00	0.00	0.00	0.00	0.00	0.00	11.42	7.85
127.00	917.00	1.35	25.96	0.96	6.01	4.31	9.06	3.38	19.76	0.00	0.00	0.00	0.00	0.00	0.00	11.59	7.85
113.00	1133.00	1.29	25.56	1.02	6.14	4.35	9.06	3.29	19.76	0.00	0.00	0.00	0.00	0.00	0.00	11.77	7.85
100.00	1350.00	1.23	25.14	1.10	6.27	4.40	9.06	3.19	19.76	0.00	0.00	0.00	0.00	0.00	0.00	11.98	7.85
87.00	1567.00	1.18	24.71	1.20	6.40	4.47	9.06	3.09	19.75	0.00	0.00	0.00	0.00	0.00	0.00	12.20	7.85
73.00	1783.00	1.14	24.28	1.31	6.52	4.56	9.06	3.00	19.75	0.00	0.00	0.00	0.00	0.00	0.00	12.45	7.85
60.00	2000.00	1.10	23.87	1.44	6.63	4.67	9.06	2.90	19.74	0.00	0.00	0.00	0.00	0.00	0.00	12.72	7.85

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

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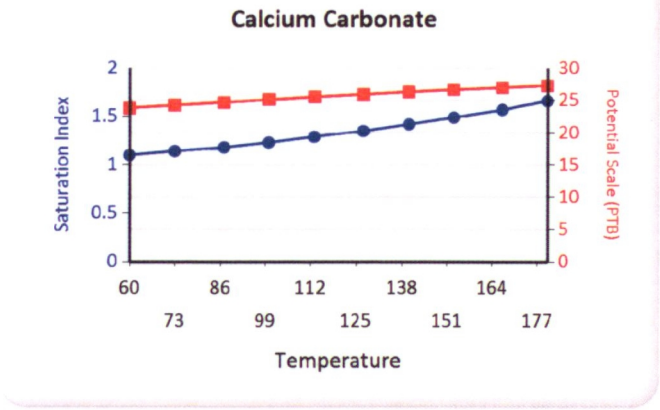
A HALLIBURTON SERVICE

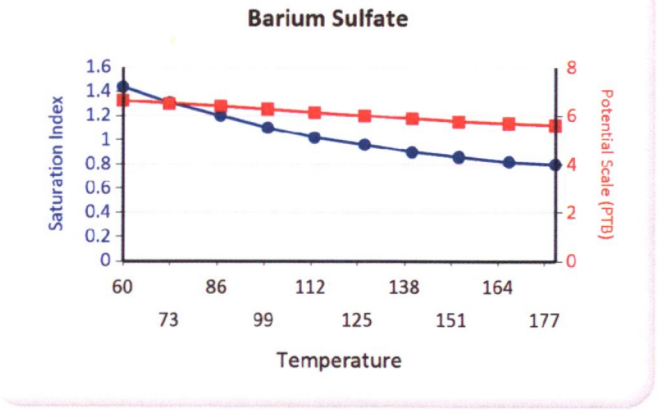
Water Analysis Report

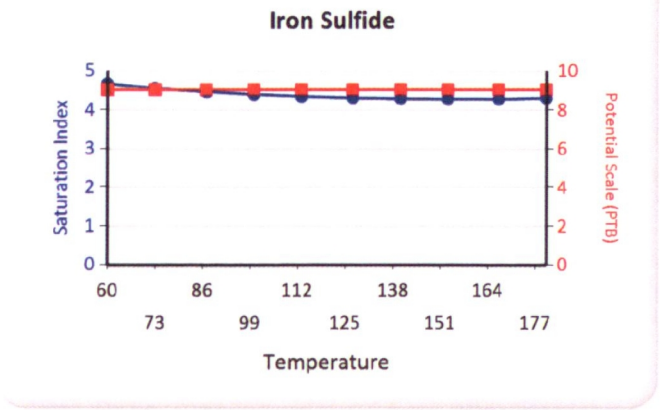
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	3.38	10.10	0.00	0.00	5.38	29.56	2.74	19.67	13.34	21.15
167.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	3.22	10.10	0.00	0.00	4.65	26.71	2.30	17.02	12.78	21.15
153.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	3.06	10.09	0.00	0.00	4.02	23.96	1.93	14.70	12.32	21.15
140.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	2.89	10.09	0.00	0.00	3.38	20.81	1.57	12.23	11.87	21.14
127.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	2.72	10.08	0.00	0.00	2.74	17.36	1.20	9.64	11.43	21.13
113.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	2.53	10.07	0.00	0.00	2.11	13.69	0.84	6.97	11.00	21.12
100.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	2.34	10.05	0.00	0.00	1.47	9.83	0.49	4.25	10.58	21.10
87.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13	10.01	0.00	0.00	0.82	5.79	0.13	1.44	10.17	21.08
73.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92	9.95	0.00	0.00	0.18	1.51	0.00	0.00	9.77	21.04
60.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69	9.85	0.00	0.00	0.00	0.00	0.00	0.00	9.38	20.99

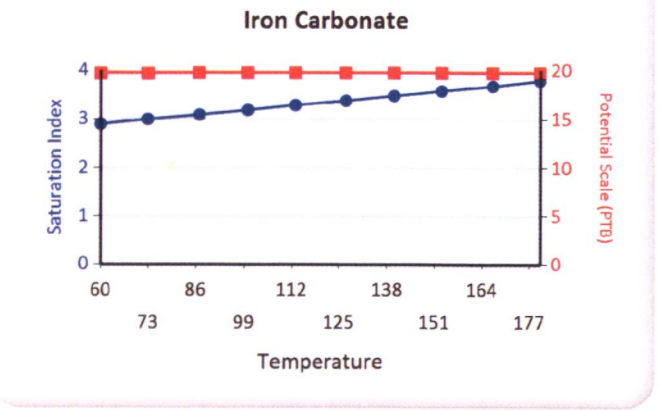
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Fe Silicate







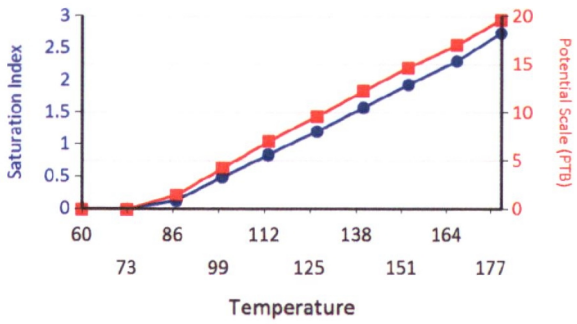


Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

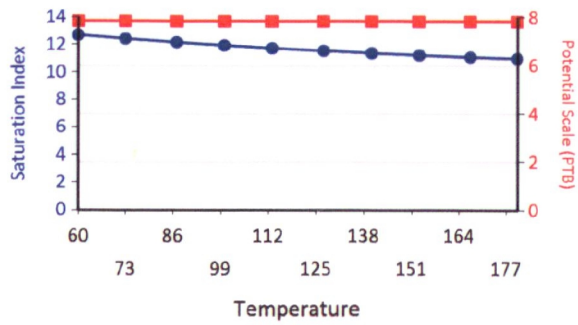
multi-chem®
A HALLIBURTON SERVICE

Water Analysis Report

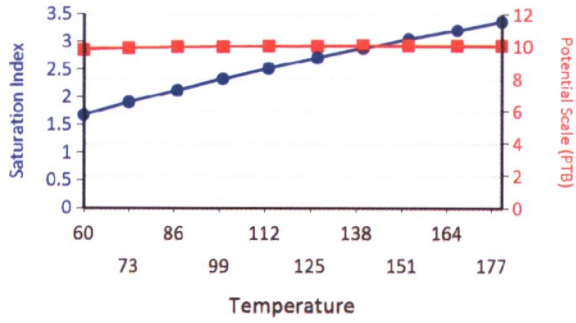
Ca Mg Silicate



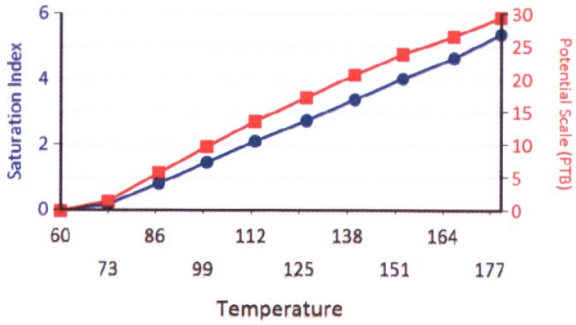
Zinc Sulfide



Zinc Carbonate



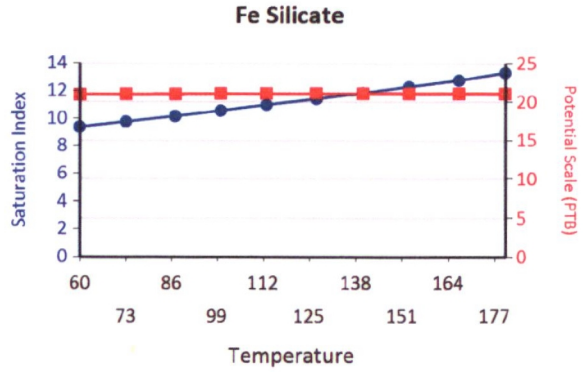
Mg Silicate



Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

multi-chem®
A HALLIBURTON SERVICE

Water Analysis Report



OMB No. 2040-0042 Approval Expires 11/30/2014

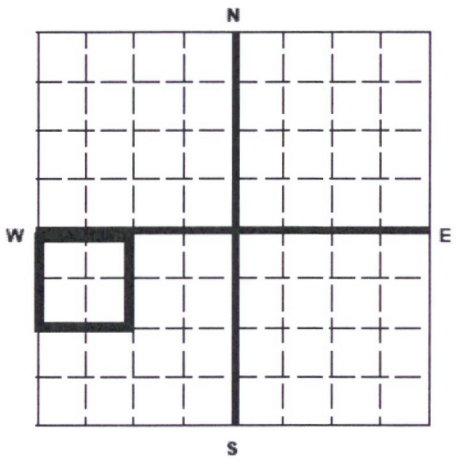
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-~~04484~~ 04523

Surface Location Description
___ 1/4 of ___ 1/4 of NW 1/4 of SW 1/4 of Section 29 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1865 ft. frm (N/S) S Line of quarter section and 699 ft. from (E/W) W Line of quarter section.

U2 Entered
Date 3/3/16
Initial JB

WELL ACTIVITY	TYPE OF PERMIT
[ ] Brine Disposal	[ ] Individual
[X] Enhanced Recovery	[X] Area
[ ] Hydrocarbon Storage	Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 29-12

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING – CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	15	1725	1763	32		0	0
February	15	1806	1847	64		0	0
March	15	1062	1854	18		0	1380
April	15	0	0	0		1200	1400
May	15	484	1136	265		0	2050
June	15	1732	1821	1263		0	0
July	15	1493	1686	5		0	0
August	15	1370	1392	0		0	0
September	15	1360	1391	0		0	0
October	15	1414	1414	54		0	0
November	15	1650	1677	221		0	0
December	15	1667	1683	78		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		02/08/2016

EPA Form 7520-11 (Rev. 12-11)

GREEN BLUE CB
TAB 2

Petroglyph Operating Company, Inc.
Annulus Pressure Cause and Mitigation Measures
EPA Annual Injection Report for Reporting Period 2015

Well Name: Ute Tribal 29-12

UIC Permit Number: UT2736-04523

API Number: 43-013-31797

Cause of Pressure and Mitigation Measures:

This well lost mechanical integrity on March 8, 2015. Flow back began on May 7, 2015; and a rig was placed on the well from May 10th to 18th, 2015. A successful Mechanical Integrity Test was submitted on May 22, 2015. A step rate tests were performed on June 1st through 8th and on June 30th. Resumed injection after successful MIT on October 29, 2015.

Please see copy of attached notice and successful MIT test submitted to EPA on May 22, 2015.

PETROGLYPH

March 11, 2015

Don Breffle
Mail Code: 8ENF-UFO
US EPA Region 8
1595 Wyncoop Street
Denver, CO 80202-1129

RE: Underground Injection Control (UIC)
Notice of Violation
Loss of Mechanical Integrity
EPA Permit #UT2736-04523
Well No. Ute Tribal 29-12
Antelope Creek Oil Field
Duchesne County, Utah

Dear Mr. Breffle:

Please be advised that on March 8, 2014 we lost Mechanical Integrity on the Ute Tribal 29-12 Injection Well. My direct number is 435-722-5302 if you wish to contact us.

Sincerely,
Petroglyph Operating Company, Inc.

Rodrigo Jurado
Regulatory Compliance Specialist

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

MAR 19 2015

Ref: 8ENF-UFO

CERTIFIED MAIL 7009-3410-0000-2599-4906
RETURN RECEIPT REQUESTED

Mr. Les Farnsworth, District Supervisor
Petroglyph Operating Company, Inc.
4116 W 3000 S Ioka Lane
P.O. Box 607
Roosevelt, Utah 84066

Re: Underground Injection Control (UIC)
Notice of Violation:
Loss of Mechanical Integrity
Ute Tribal 29-12 Well
EPA Permit ID# UT20736-04523
API # 43-013-31797
Antelope Creek Oil Field
Duchesne County, Utah

Dear Mr. Farnsworth:

On March 17, 2015, the Environmental Protection Agency (EPA) learned that the Petroglyph Operating Company, Inc. injection well referenced above lost mechanical integrity on March 8, 2015. Pursuant to the above-referenced UIC Permit and Title 40 of the Code of Federal Regulations Section 144.51(q)(1) (40 C.F.R. § 144.51(q)(1)), you must establish and maintain mechanical integrity. A loss of mechanical integrity is a violation of this requirement.

Pursuant to the above-referenced UIC Permit and the regulations at 40 C.F.R. § 144.51(q)(2), you must immediately cease injection into this well. Before injection may resume, you must demonstrate that the well has mechanical integrity by passing a mechanical integrity test (MIT). You must also receive written authorization from the EPA.

Within thirty (30) days of receipt of this letter, please submit a letter describing what action you intend to take regarding the well, including a time frame in which you anticipate the work to be completed. It is expected that you will return this well to compliance within ninety (90) days of the loss of mechanical integrity.

If you choose to plug and abandon this well, the approved plugging and abandonment plan that is incorporated into the permit must be followed. Any deviation from that plan must be submitted to the EPA for approval prior to the plugging operation.

Failure to comply with the UIC regulations found at 40 C.F.R. Parts 144 through 148 constitutes one or more violations of the Safe Drinking Water Act, 42 U.S.C. § 300h. Such non-compliance may subject you to formal enforcement by the EPA, as codified at 40 C.F.R. Part 22.

If you have any questions concerning this letter, you may contact Gary Wang at (303) 312-6469. Please direct all correspondence to the attention of Gary Wang at Mail Code 8ENF-UFO.

Sincerely,

Arturo Palomares, Director
Water Technical Enforcement Program
Office of Enforcement, Compliance
and Environmental Justice

cc: Gordon Howell, Chairman, Uintah & Ouray Business Committee
Ronald Wopsock, Vice-Chairman, Uintah & Ouray Business Committee
Reannin Tapoof, Executive Assistant, Uintah & Ouray Business Committee
Stewart Pike, Councilman, Uintah & Ouray Business Committee
Tony Small, Councilman, Uintah & Ouray Business Committee
Bruce Ignacio, Councilman, Uintah & Ouray Business Committee
Phillip Chimburas, Councilman, Uintah & Ouray Business Committee
Manuel Myore, Director of Energy, Minerals and Air Programs
Brad Hill, Utah Division of Oil, Gas and Mining

March 24, 2015

Don Breffle
Mail Code: 8ENF-UFO
US EPA Region 8
1595 Wyncoop Street
Denver, CO 80202-1129

RE: Underground Injection Control (UIC)
Notice of Violation
Loss of Mechanical Integrity
EPA Permit # UT2736-04523
Well No. Ute Tribal 29-12
Antelope Creek Oil Field
Duchesne County, Utah

Dear Mr. Breffle:

Please be advised, this is the action we plan to take to fix the loss of integrity on the 29-12 injector: we are going to release the packer and pull the tubing, inspecting the tubing as it comes out of the hole, make a bit and scraper run past the perforations, and circulate and clean the well. We will re-perforate existing perforations and add new perforations. Existing perforations are the following: 5532-34, 5518-24, 5512-14, 4874-82, 4749-53, 4622-24, 4614-17 & 4600-03. We plan to shoot the following: 5532-40, 5505-27, 5484-91, 5466-74, 5424-30, 5400-06, 5392-96, 5249-53, 5243-45, 5218-23, 4870-86, 4749-53, 4739-43, 4659-69, 4622-25, 4613-18, 4596-4604, 4350-55, 4264-74 & 4126-44. We will break down perfs, test their injection rates, then run in an Arrowset 1 Packer and perform an MIT on the casing to 1900psi. We will submit the results of the MIT for approval to re-inject. This work is expected to begin as soon as equipment becomes available. My direct number is 435-722-5302 if you wish to contact us.

Sincerely,
Petroglyph Operating Company, Inc.

Rodrigo Jurado
Regulatory Compliance Specialist

May 22, 2015

EPA
ATTN: Don Breffle
Region 8
1595 Wyncoop Street
Denver, CO 80202-8917

UIC Permit #UT2736-04523
Well ID: Ute Tribal 29-12
Ute Tribal No. 29-12, Duchesne County, Utah

Dear Mr. Breffle,

Please find enclosed the successful MIT. This test was performed to provide proof of integrity after rigged up on the well to address a loss of mechanical integrity and re-perforate the current injection interval and added additional perforations.

On May 12, 2015 we rigged up on the well, released the packer and pulled the tubing, scan logging on the way out. We laid down the whole string. We picked up new tubing, made a bit and scraper run past all perforations to 5,691' and circulated and cleaned the well. We then perforated the following: 5,532'-40', 5,505'-27', 5,484'-91', 5,466'-74', 5,424'-30', 5,400'-06', 5,392'-96', 5,249'-53', 5,243'-45', 5,218'-23', 4,870'-86', 4,749'-53', 4,739'-43', 4,659'-69', 4,622'-25', 4,613'-18', 4,596'-4,604', 4,350'-55', 4,264'-74' & 4,126'-44'. Perforations were made using were Titan 4" guns containing 19 grams charges, 0.40" EHD, 16.33" TTP, 4 SPF @ 120° Phased. We isolated various intervals and tested their injection rates. We pulled all tools and ran in with a new Arrowset 1 Packer and new tubing, breaking and doping all joints on the way in, then set the packer, pressure tested the tubing and performed and MIT on the casing to 1,900 Psi with no loss. The plan going forward is to perform a step rate test on the well, analyze the results and calculate a new MAIP, and submit results for approval to resume injection.

My direct number is 435-722-5302 if you wish to contact us.

Sincerely,

Rodrigo Jurado
Regulatory Compliance Spc

Encl: MIT

Mechanical Integrity Test
Tubing/Casing Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program
1595 Wynkoop Street, Denver, CO 80202

EPA Witness: _____ Date: 5/20/15

Test conducted by: CHAD STEVENSON

Others present: _____

Well Name: 29-12 Type: ER SWD **Status: AC TA UC**

Field: ANTELOPE CREEK

Location: 29-12 Sec: ____ T ____ N / S R ____ E / W County: DUCHESNE State: UT

Operator: PETROGLYPH ENERGY

Last MIT: ____ / ____ / ____ **Maximum Allowable Pressure:** _____ **PSIG**

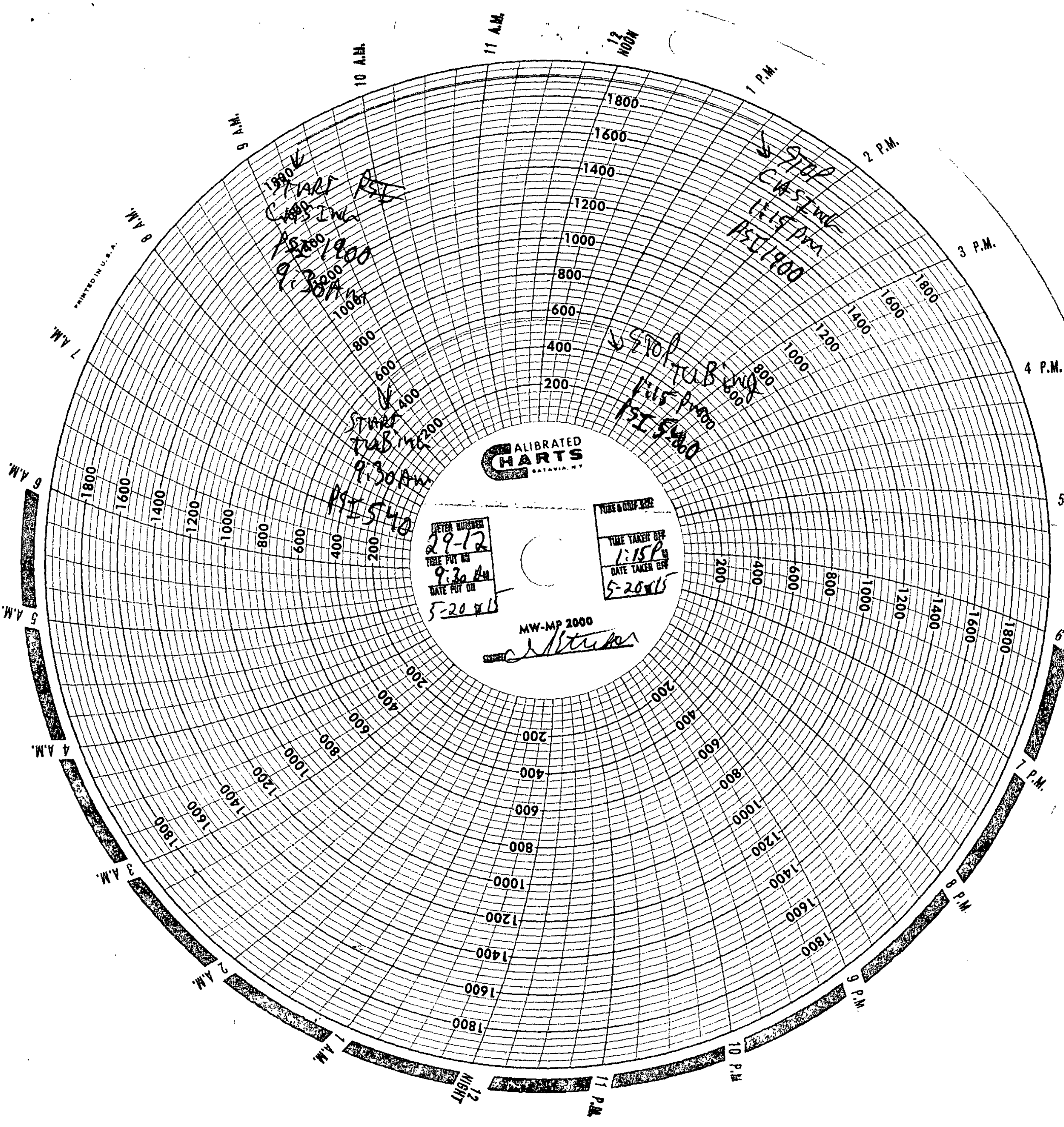
Regularly scheduled test? [ ] Yes [ ] No
Initial test for permit? [ ] Yes [ ] No
Test after well rework? [X] Yes [ ] No

Well injecting during test? If Yes, rate: _____ **bpd**

Pre-test annulus pressure: _____ **psig**

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING PRESSURE RECORD			
Initial Pressure	540 psig	psig	psig
End of test pressure	540 psig	psig	psig
CASING / TUBING ANNULUS PRESSURE RECORD			
0 minutes	1900 psig	psig	psig
5 minutes	1900 psig	psig	psig
10 minutes	1900 psig	psig	psig
15 minutes	1900 psig	psig	psig
20 minutes	1900 psig	psig	psig
25 minutes	1900 psig	psig	psig
30 minutes	1900 psig	psig	psig
3 HOURS ~~minutes~~	1900 psig	psig	psig
_____ minutes	psig	psig	psig
RESULT	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail

Does the annulus pressure build back up after the test ? **If Yes,** _____ **psig.**


CALIBRATED CHARTS
BATAVIA, N.Y.
MW-MP 2000
PRINTED IN U.S.A.
METER NUMBER
29-12
TIME PUT ON
9:30 AM
DATE PUT ON
5-20-15
TUBE & ORIF. SIZE
TIME TAKEN OFF
1:15 PM
DATE TAKEN OFF
5-20-15
START PSI CASING
PSI 1900
9:30 AM
START TUBING
9:30 AM
PSI 540
STOP CASING
1:15 PM
PSI 1900
STOP TUBING
1:15 PM
PSI 540

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region08

Ref: 8ENF-UFO

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Rodrigo Jurado, Regulatory Compliance Specialist
Petroglyph Operating Company, Inc.
4116 West 3000 South Ioka Lane
P.O. Box 2653
Roosevelt, Utah 84066

Re: Underground Injection Control (UIC)
Requirement to Conduct Step-Rate Test
Ute Tribal 29-12 Well
EPA Well No. UT20736-04523
EPA Permit No. UT20736-10000
API # 43-013-31797
Antelope Creek Oil Field
Duchesne County, Utah

Permission for Step rate test using only surface gauges granted by Curt Wang w/ U.S. EPA via Voicemail to Kevin Dicker on 5/26/15 @ 9:12 A.M.

Dear Mr. Jurado:

On March 30, 2015, the Environmental Protection Agency (EPA) received a letter from Petroglyph Operating Company, Inc. (Petroglyph) regarding the proposed workover plan to address a loss of mechanical integrity for the above-referenced well. The proposed plan includes new perforations at intervals up to 4126 feet, while the current highest perforation for the well is at 4600 feet. These new perforations will constitute a shallower well depth of 474 feet above your current highest perforation. Because perforations are planned at a shallower level for the well, the EPA requires well specific information to ensure that the current maximum allowable injection pressure (MAIP) is appropriate with the new perforations.

Pursuant to Part II.C.5 of the above referenced UIC permit and the regulations at 40 C.F.R. § 144.51(h), a step-rate injection test shall be performed, following current EPA guidance, to determine the fracture gradient of the injection zone. The step-rate test shall be conducted with both surface and bottom-hole pressure gauges. The fracture gradient will be used to recalculate the MAIP for the well and the EPA will notify Petroglyph in writing of the revised MAIP. Demonstration of mechanical integrity must be presented to the EPA before initiating the step-rate test. Upon satisfactory completion of the step-rate test, injection must cease until a new MAIP is calculated. Within thirty (30) days after completion of the step-rate test, please complete and submit to the EPA the test results.

Failure to comply with a UIC permit or the UIC regulations found at 40 C.F.R. Parts 144 and 146 constitute one or more violations of the Safe Drinking Water Act, 42 U.S.C. § 300h-2. Such non-compliance may subject you to formal enforcement by the EPA, as codified at 40 C.F.R. Part 22.

If you have any questions concerning this letter, you may contact Gary Wang at (303) 312-6469. Please direct all correspondence to the attention of Gary Wang at Mail Code 8ENF-UFO.

Sincerely,

for Arturo Palomares, Director
Water Technical Enforcement Program
Office of Enforcement, Compliance
and Environmental Justice

cc: Gordon Howell, Chairman, Uintah & Ouray Business Committee
Ronald Wopsock, Vice-Chairman, Uintah & Ouray Business Committee
Reannin Tapoof, Executive Assistant, Uintah & Ouray Business Committee
Stewart Pike, Councilman, Uintah & Ouray Business Committee
Tony Small, Councilman, Uintah & Ouray Business Committee
Bruce Ignacio, Councilman, Uintah & Ouray Business Committee
Phillip Chimburas, Councilman, Uintah & Ouray Business Committee
Manuel Myore, Director of Energy, Minerals and Air Programs
Brad Hill, Utah Division of Oil, Gas and Mining

July 1, 2015

Don Breffle
Mail Code: 8ENF-UFO
US EPA Region 8
1595 Wyncoop Street
Denver, CO 80202-1129

RE: EPA AREA PERMIT NO. UT2736-04523
Change of maximum surface injection pressure
Ute Tribal 29-12 NWSW Sec. 29-T5S-R3W, Duchesne County, Utah

Mr. Breffle:
Petroglyph Operating Company performed a step rate test on the Ute Tribal 29-12 EPA Permit # UT2736-04523. Petroglyph is requesting that the maximum surface injection pressure be increased from 1900 psig to 1924 psig. The enclosed materials include a spreadsheet containing the data recorded using our injection monitoring system, and a summary and analysis of the step rate test.

If you need any more information please call at (435) 722-5302.

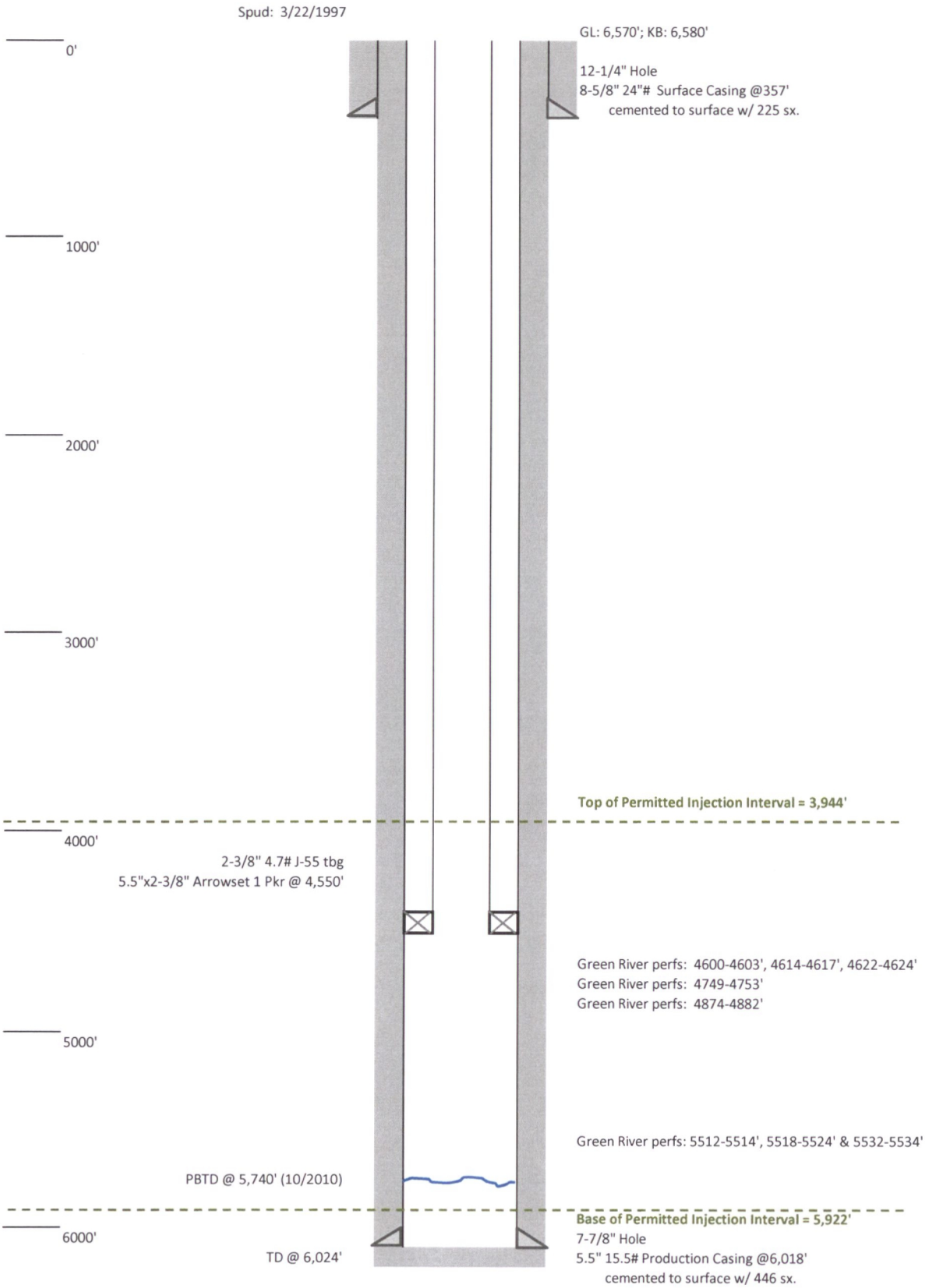
Sincerely,
Petroglyph Operating Co., Inc.

Rodrigo Jurado
Regulatory Compliance Specialist

Encl: SRT Summary and Analysis, SRT XLS File

Petroglyph Operating Company, Inc.
Ute Tribal 29-12 Injector
UIC Permit # UT2736-04324
API # 43-013-31797

03/25/2015 Proposed Reperforating Green River Formation
BEFORE PROPOSED WORKOVER



Petroglyph Operating Company, Inc.

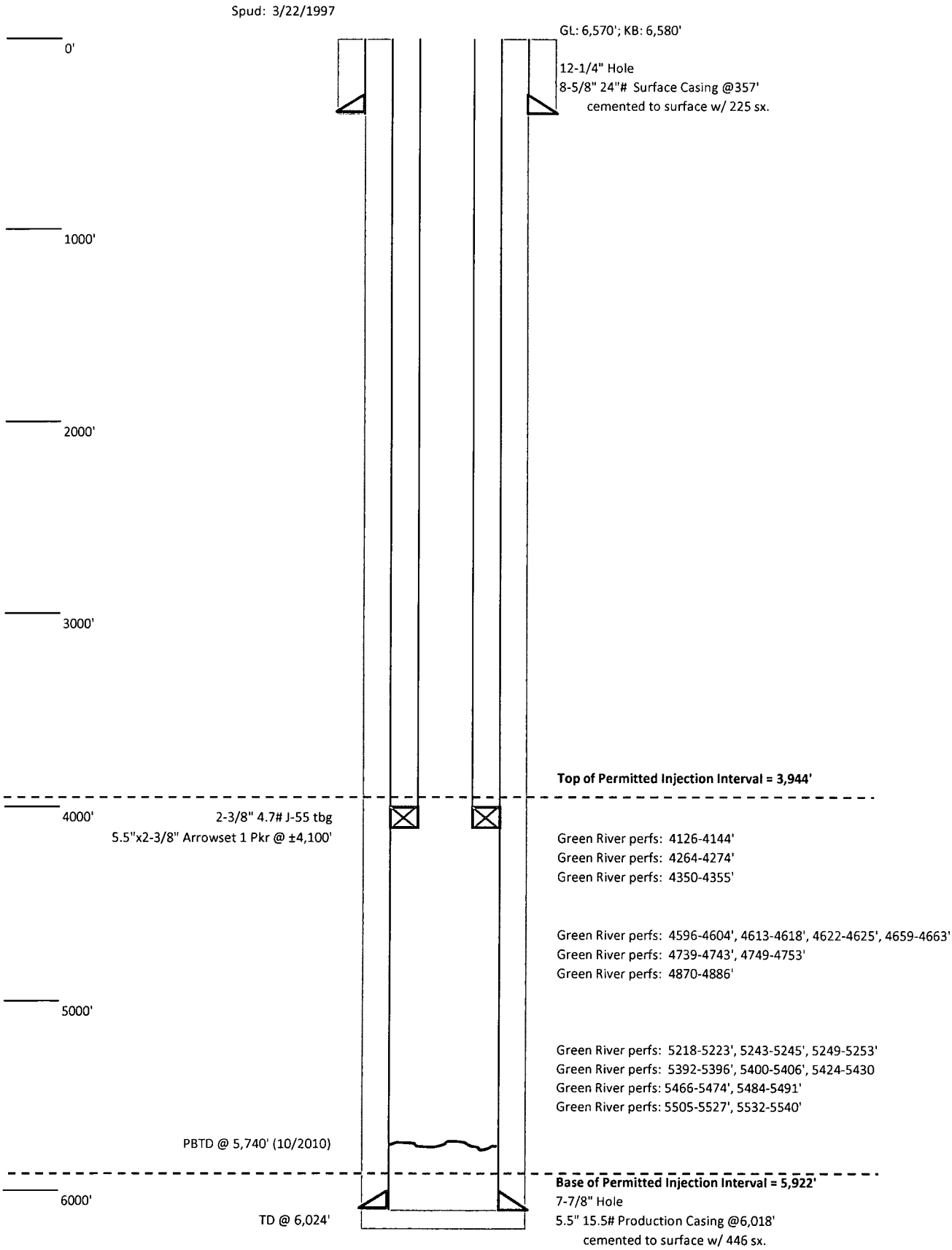
Ute Tribal 29-12 Injector

UIC Permit # UT2736-04324

API # 43-013-31797

03/25/2015 Proposed Reperforating Green River Formation

AFTER PROPOSED WORKOVER



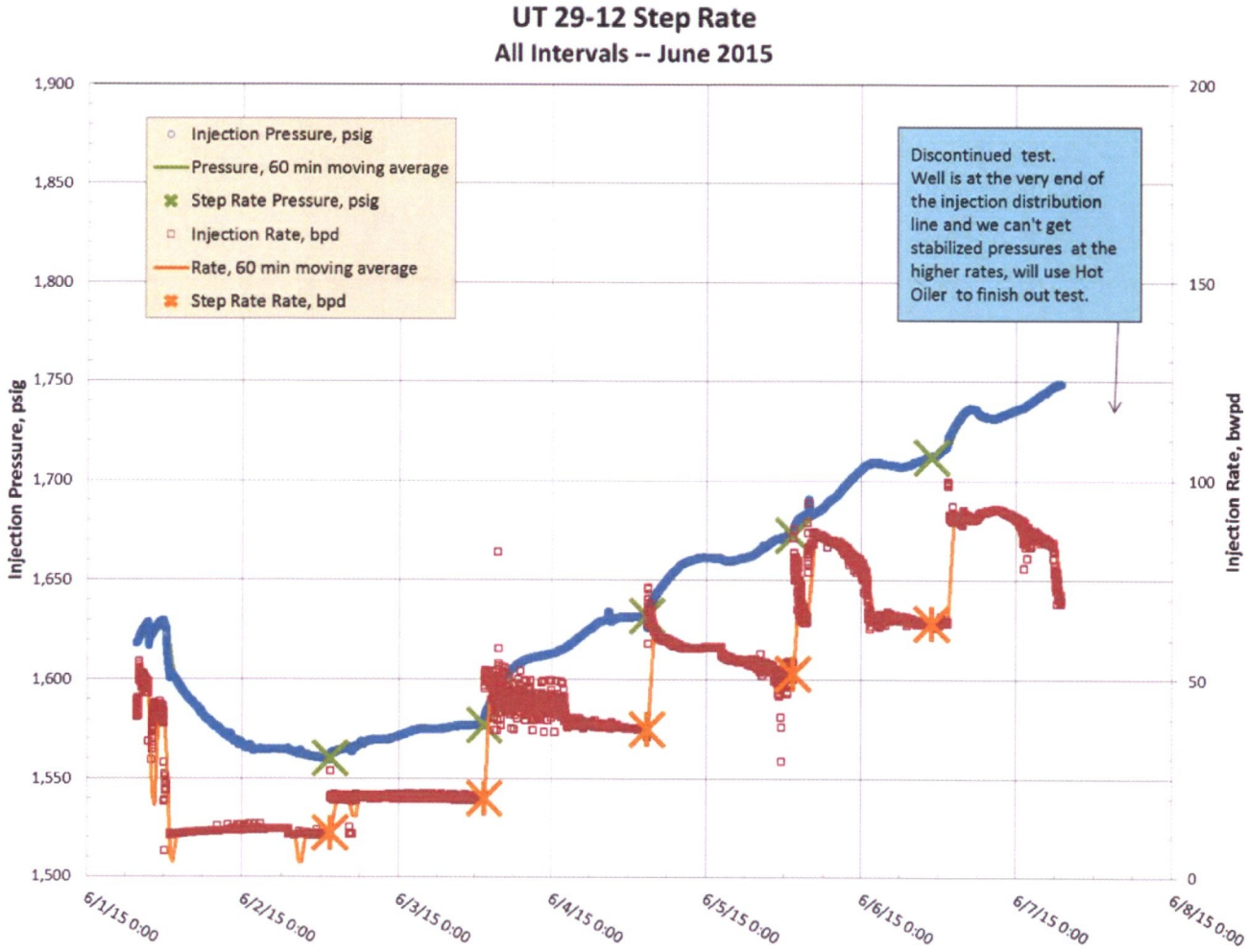
Step Rate Test

UT 29-12 Injector

Antelope Creek Field
Duchesne County, UT
EPA Permit #: UT2736-00000

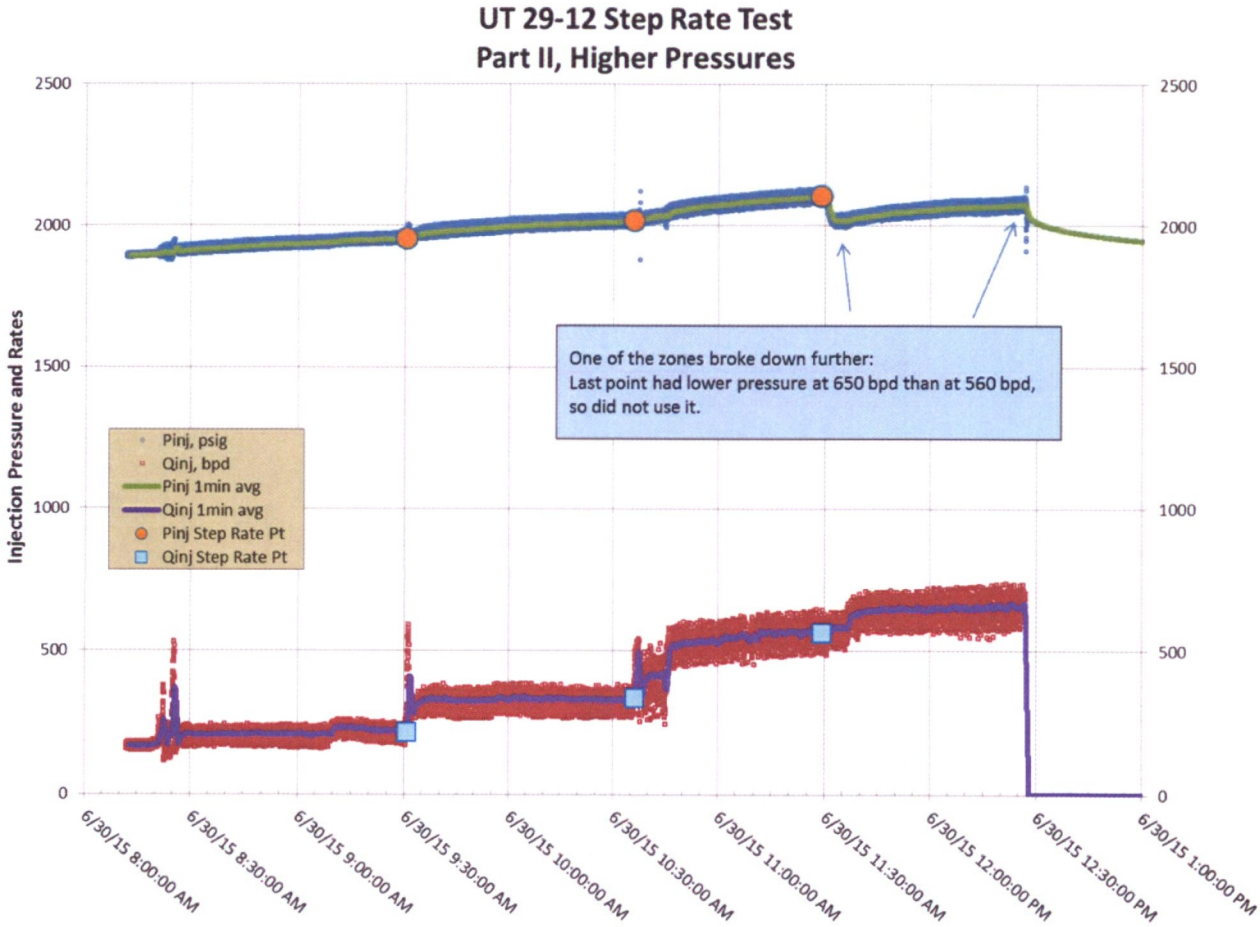
On May 12, 2015, Petroglyph Energy began a workover on the UT 29-12 Injector. As part of that workover, we added new perforations within the permitted injection interval, but above the present perforations, necessitating a new step rate test to determine the maximum allowed injection pressure.

Historically in Antelope Creek, it has been hard to obtain stabilized step rate points using constant one hour pumping intervals. This is due to the fact that at low rates (below the fracture gradient) in takes significantly longer for the rate and pressure to stabilize than one hour. To address that, we used our injection facility to pump the initial points and allowed the rate and pressure to stabilize over 24-hour periods, resulting in much better data:



Since the UT 29-12 is located at the end of the injection distribution system, we were limited to rates of approximately 65 bwpd, but five good stabilized points were obtained below the fracturing point. At this point the well was shut-in and injection stopped until we could line up a hot oiler that could steadily pump at rates under 0.5 bpm (<720 bpd).

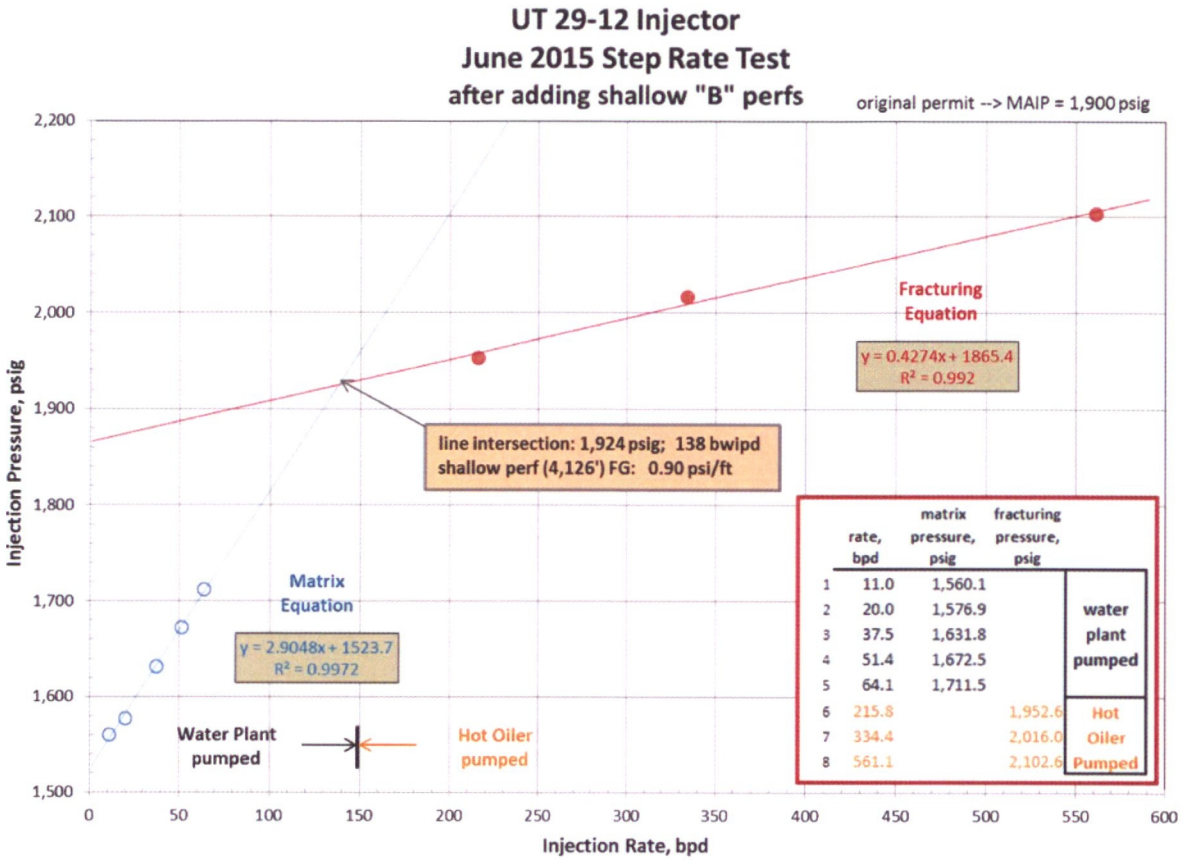
It took us a few weeks to locate a hot oiler that could steadily pump at lower rates. Once we did, we initiated minimal injection, using the water plant, at 25 bwipd for 24 hours prior to starting the second portion of our step rate test where we used the hot oiler to obtain pressure points above the fracturing gradient. Once the well began fracturing, it was much easier to obtain stabilized rates and pressures, and one hour pumping increments were adequate to obtain three points above the fracturing point.



All data was recorded using an electronic Halliburton meter. The data, logged using the water plant as the pumping device, was recorded on one minute increments. When we used the hot oiler, we recorded data on one second increments due to the shorter pumping intervals.

The resultant step rate plot indicates a fracturing point intersection at:

- **1,924 psig**
- **138 bwipd**



The R^2 of both the Matrix and Fracturing lines is >0.99 indicating extremely good data agreement and a good test. A spreadsheet with the data and graphs is attached.

Kevin Dickey
VP Operations
Petroglyph Energy, Inc.
960 Broadway Ave, Boise, ID 83706
o. 208.685.7654
m. 208.841.5354

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

OCT 2 3 2015

Ref: 8ENF-UFO

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Rodrigo Jurado, Regulatory Compliance Specialist
Petroglyph Operating Company, Inc.
4116 West 3000 South Ioka Lane
P.O. Box 2653
Roosevelt, Utah 84066

Re: Underground Injection Control (UIC)
Change in Maximum Allowable Injection Pressure
Ute Tribal 29-12 Well
EPA Well No. UT20736-04523
EPA Permit No. UT20736-10000
API # 43-013-31797
Antelope Creek Oil Field
Duchesne County, Utah

Dear Mr. Jurado:

On July 6, 2015, the Environmental Protection Agency (EPA) received a letter from Petroglyph Operating Company, Inc. (Petroglyph) requesting a proposed change of the maximum allowable surface injection pressure (MAIP) for the above-referenced well. The proposed change in MAIP included results from a step rate test conducted in two separate parts. Part one of the step rate test, conducted from June 1, 2015 to June 8, 2015, determined data used for the well's matrix slope. Part two of the step rate test, conducted on June 30, 2015, determined data used for the well's fracturing slope. Because the results of the step rate test was conducted in two separate events, the EPA did not approve of the MAIP proposed by Petroglyph.

On September 22, 2015, Petroglyph responded via email with an amended requested for a proposed change in MAIP to 1711 pounds per square inch, gauge (psig). This proposed value was requested because it was the highest stabilized matrix pressure observed during the step rate test and is thus still below the fracture pressure of the injection zone. The EPA has reviewed your request and concurs that the 1711 psig is an acceptable value for the MAIP.

Pursuant to Part II, Section C.5.b of the above referenced permit, the EPA hereby revises the MAIP for the Ute Tribal 29-12 injection well to not exceed **1710** psig. The determination is based on the highest stabilized matrix pressure observed during the step rate test, rounded down to an integer of five.

Failure to comply with a UIC permit or the UIC regulations found at 40 C.F.R. Parts 144 and 146 constitute one or more violations of the Safe Drinking Water Act, 42 U.S.C. § 300h-2. Such non-compliance may subject you to formal enforcement by the EPA, as codified at 40 C.F.R. Part 22.

If you have any questions concerning this letter, you may contact Gary Wang of my staff at (800) 227-8917, extension 312-6469 or at (303) 312-6469. Please direct all correspondence to the attention of Gary Wang at Mail Code 8ENF-UFO.

Sincerely,

Arturo Palomares, Director
Water Technical Enforcement Program
Office of Enforcement, Compliance
and Environmental Justice

cc: Shaun Chapoose, Chairman, Uintah & Ouray Business Committee
Edred Secakuku, Vice-Chairman, Uintah & Ouray Business Committee
Reannin Tapoof, Executive Assistant, Uintah & Ouray Business Committee

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

JUN 0 2 2015

Ref: 8ENF-UFO

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Rodrigo Jurado, Regulatory Compliance Specialist
Petroglyph Operating Company, Inc.
4116 West 3000 South Ioka Lane
P.O. Box 2653
Roosevelt, Utah 84066

Re: Underground Injection Control (UIC)
Permission to Resume Injection
EPA Well No. UT20736-04523
EPA Permit No. UT20736-10000
API # 43-013-31797 Ute Tribal 29-12
Antelope Creek Oil Field
Duchesne County, Utah

Dear Mr. Jurado:

On May 21, 2015, the Environmental Protection Agency (EPA) received information from Petroglyph Operating Company, Inc. (Petroglyph) on the above referenced well concerning the workover to address a loss of mechanical integrity and the followup mechanical integrity test (MIT) conducted on May 20, 2015. The data submitted shows that the well passed the required MIT. Therefore, pursuant to Title 40 of the Code of Federal Regulations Section 144.51(q)(2) (40 C.F.R. § 144.51(q)(2)), permission to resume injection is granted. Under continuous service, the next MIT will be due on or before May 20, 2020.

Pursuant to 40 C.F.R. § 144.52(a)(6), if the well is not used for a period of at least two (2) years ("temporary abandonment"), it shall be plugged and abandoned unless the EPA is notified and procedures are described to the EPA ensuring the well will not endanger underground sources of drinking water ("non-endangerment demonstration") during its continued temporary abandonment. A successful MIT is an acceptable non-endangerment demonstration and would be necessary every two (2) years the well continues in temporary abandonment.

Failure to comply with a UIC Permit, or the UIC regulations found at 40 C.F.R. Parts 144 through 148 constitute one or more violations of the Safe Drinking Water Act, 42 U.S.C. § 300h. Such non-compliance may subject you to formal enforcement by the EPA, as codified at 40 C.F.R. Part 22.

If you have any questions concerning this letter, you may contact Gary Wang at (303) 312-6469. Please direct all correspondence to the attention of Gary Wang at Mail Code 8ENF-UFO.

Sincerely,

Arturo Palomares, Director
Water Technical Enforcement Program
Office of Enforcement, Compliance
and Environmental Justice

cc: Gordon Howell, Chairman, Uintah & Ouray Business Committee
Ronald Wopsock, Vice-Chairman, Uintah & Ouray Business Committee
Reannin Tapoof, Executive Assistant, Uintah & Ouray Business Committee
Stewart Pike, Councilman, Uintah & Ouray Business Committee
Tony Small, Councilman, Uintah & Ouray Business Committee
Bruce Ignacio, Councilman, Uintah & Ouray Business Committee
Phillip Chimburas, Councilman, Uintah & Ouray Business Committee
Manuel Myore, Director of Energy, Minerals and Air Programs
Brad Hill, Utah Division of Oil, Gas and Mining

Sundry Number: 63619 API Well Number: 43013317970000

FORM 9

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

5.LEASE DESIGNATION AND SERIAL NUMBER: 14-20-H62-3518

SUNDRY NOTICES AND REPORTS ON WELLS

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

7.UNIT or CA AGREEMENT NAME: ANTELOPE CREEK

1. TYPE OF WELL Water Injection Well

8. WELL NAME and NUMBER: UTE TRIBAL 29-12

2. NAME OF OPERATOR: PETROGLYPH OPERATING CO

9. API NUMBER: 43013317970000

3. ADDRESS OF OPERATOR: 960 Broadway Avenue, Ste 500 , Boise, ID, 83703

PHONE NUMBER: 208 685-7685 Ext

9. FIELD and POOL or WILDCAT: ANTELOPE CREEK

4. LOCATION OF WELL
FOOTAGES AT SURFACE: 1865 FSL 0699 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: NWSW Section: 29 Township: 05.0S Range: 03.0W Meridian: U

COUNTY: DUCHESNE

STATE: UTAH

11.

CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT Approximate date work will start:	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
✓ SUBSEQUENT REPORT Date of Work Completion: 5/18/2015	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
☐ SPUD REPORT Date of Spud:	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ DRILLING REPORT Report Date:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
	✓ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	☐ OTHER	OTHER:

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Please see attached.

Accepted by the Utah Division of Oil, Gas and Mining
FOR RECORD ONLY
June 03, 2015

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Rodrigo Jurado	435 722-5302	Regulatory & Compliance Spc
SIGNATURE N/A		**DATE** 6/1/2015

RECEIVED: Jun. 01, 2015

Sundry Number: 63619 API Well Number: 43013317970

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5 LEASE DESIGNATION AND SERIAL NUMBER	14-20-H62-3518
6 IF INDIAN, ALLOTTEE OR TRIBE NAME	Ute Indian Tribe
7 UNIT or CA AGREEMENT NAME	14-20-H62-4650
1 TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER Water Injection Well	8 WELL NAME and NUMBER: Ute Tribal 29-12
2 NAME OF OPERATOR: Petroglyph Operating Company Inc.	9 API NUMBER: 4301331797
3 ADDRESS OF OPERATOR: P.O. Box 607, Roosevelt, UT 84066 — PHONE NUMBER: (435) 722-2531	10 FIELD AND POOL, OR WILDCAT: Antelope Creek

4 LOCATION OF WELL

FOOTAGES AT SURFACE: 1865' FSL 699' FWL — COUNTY: Duchesne

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWSW 29 5S 3W U — STATE: UTAH

11 CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT (Submit in Duplicate)	☐ ACIDIZE	☐ DEEPEN	☑ REPERFORATE CURRENT FORMATION
Approximate date work will start: _____	☐ ALTER CASING	☐ FRACTURE TREAT	☐ SIDETRACK TO REPAIR WELL
	☐ CASING REPAIR	☐ NEW CONSTRUCTION	☐ TEMPORARILY ABANDON
	☐ CHANGE TO PREVICUS PLANS	☐ OPERATOR CHANGE	☐ TUBING REPAIR
	☐ CHANGE TUBING	☐ PLUG AND ABANDON	☐ VENT OR FLARE
☑ SUBSEQUENT REPORT (Submit Original Form Only)	☐ CHANGE WELL NAME	☐ PLUG BACK	☐ WATER DISPOSAL
Date of work completion: 5/18/2015	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☐ OTHER _____
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

12 DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

On May 12, 2015 we rigged up on the well to address a loss of mechanical integrity and re-perforate existing perforations and add some new perforations. We released the packer and pulled the tubing, scan logging on the way out. We laid down the whole string. We picked up new tubing, made a bit and scraper run past all perforations to 5,691' and circulated and cleaned the well. We then perforated the following: 5,532'-40', 5,505'-27', 5,484'-91', 5,466'-74', 5,424'-30', 5,400'-06', 5,392'-96', 5,249'-53', 5,243'-45', 5,218'-23', 4,870'-86', 4,749'-53', 4,739'-43', 4,659'-69', 4,622'-25', 4,613'-18', 4,596'-4,604', 4,350'-55', 4,264'-74' & 4,126'-44'. Perforations were made using were Titan 4" guns containing 19 grams charges. 0.40" EHD, 16.33" TTP, 4 SPF @ 120° Phased. We isolated various intervals and tested their injection rates. We pulled all tools and ran in with a new Arrowset 1 Packer and new tubing, breaking and doping all joints on the way in, then set the packer, pressure tested the tubing and performed and MIT on the casing to 1,900 Psi with no loss. The plan going forward is to perform a step rate test on the well, analyze the results and calculate a new MAIP, and submit results for approval to resume injection. Please contact our staff if you have any questions or need any additional information.

NAME (PLEASE PRINT): Rodrigo Jurado — TITLE: Regulatory Compliance Specialist

SIGNATURE: _____ — DATE: 6/1/2015

(This space for State use only)

(See Instructions on Reverse Side)

Sundry Number: 61765 API Well Number: 43013317970000

FEDERAL APPROVAL OF THIS ACTION IS NECESSARY

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	FORM 9 5.LEASE DESIGNATION AND SERIAL NUMBER: 14-20-H62-3518
SUNDRY NOTICES AND REPORTS ON WELLS Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.	6. IF INDIAN, ALLOTTEE OR TRIBE NAME: 7.UNIT or CA AGREEMENT NAME: ANTELOPE CREEK
1. TYPE OF WELL Water Injection Well	8. WELL NAME and NUMBER: UTE TRIBAL 29-12
2. NAME OF OPERATOR: PETROGLYPH OPERATING CO	9. API NUMBER: 43013317970000
3. ADDRESS OF OPERATOR: 960 Broadway Avenue, Ste 500 , Boise, ID, 83703 PHONE NUMBER: 208 685-7685 Ext	9. FIELD and POOL or WILDCAT: ANTELOPE CREEK
4. LOCATION OF WELL FOOTAGES AT SURFACE: 1865 FSL 0699 FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: NWSW Section: 29 Township: 05.0S Range: 03.0W Meridian: U	COUNTY: DUCHESNE STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
✓ NOTICE OF INTENT Approximate date work will start: 3/27/2015	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
☐ SUBSEQUENT REPORT Date of Work Completion:	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
☐ SPUD REPORT Date of Spud:	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
	✓ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
☐ DRILLING REPORT Report Date:	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	☐ OTHER	OTHER:

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

On or about 3/27/2015, depending on equipment availability, Petroglyph Operating plans to re-perforate the referenced well. We plan to release the packer and pull all tubing, scan log on the way out, lay down all bad pipe, make a bit and scraper run to PBTD and circulate the well. Existing perforations are as follows: 5532-34, 5518-24, 5512-14, 4874-82, 4749-53, 4622-24, 4614-17 & 4600-03. We plan to re-perforate and add new perfs. We plan to shoot the following: 5532-40, 5505-27, 5484-91, 5466-74, 5424-30, 5400-06, 5392-96, 5249-53, 5243-45, 5218-23, 4870-86, 4749-53, 4739-43, 4659-69, 4622-25, 4613-18, 4596-4604, 4350-55, 4264-74 & 4126-44. We will break down perfs, test, run in with an Arrowset 1 Packer and perform a Mechanical Integrity Test. Injection will resume after EPA Approval is received. Guns: Titan 3-1/8" cont 22.7 gram charges, 0.42"EHD, 23.54" TTP @ 4 SPF @ 120* phased.

Approved by the
Utah Division of
Oil, Gas and Mining

Date: March 31, 2015

By: Dark K Quist

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Rodrigo Jurado	435 722-5302	Regulatory & Compliance Spc
SIGNATURE N/A		DATE 3/24/2015

RECEIVED: Mar. 24, 2015

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

multi-chem®
A HALLIBURTON SERVICE

Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**UTE TRIBAL 29-12 INJ, DUCHESNE**	Lab Tech:	**Michele Pike**
Sample Point:	**Well Head**		
Sample Date:	**1/6/2016**		
Sample ID:	**WA-327706**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics

Test Date:	1/14/2016
System Temperature 1 (°F):	60
System Pressure 1 (psig):	2000
System Temperature 2 (°F):	180
System Pressure 2 (psig):	50
Calculated Density (g/ml):	1.0059
pH:	8.70
Calculated TDS (mg/L):	12427.76
CO_2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	25.00
Tot. SuspendedSolids(mg/L):	
Corrosivity(LanglierSat.Indx)	0.00
Alkalinity:	

Analysis @ Properties in Sample Specifics

Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	4208.31	Chloride (Cl):	5000.00
Potassium (K):	57.61	Sulfate (SO_4):	90.00
Magnesium (Mg):	27.33	Bicarbonate (HCO_3):	2928.00
Calcium (Ca):	75.62	Carbonate (CO_3):	
Strontium (Sr):	6.27	Acetic Acid (CH_3COO)	
Barium (Ba):	7.67	Propionic Acid (C_2H_5COO)	
Iron (Fe):	1.52	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	0.96	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.14	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.14	Silica (SiO_2):	24.19
Aluminum (Al):	0.01	Calcium Carbonate ($CaCO_3$):	
Lithium (Li):	2.27	Phosphates (PO_4):	11.19
Boron (B):	4.17	Oxygen (O_2):	
Silicon (Si):	11.31		

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	2.37	65.61	0.85	3.88	3.73	0.84	2.89	1.10	0.00	0.00	0.00	0.00	0.00	0.00	10.49	0.50
167.00	267.00	2.29	65.48	0.87	3.93	3.72	0.84	2.80	1.10	0.00	0.00	0.00	0.00	0.00	0.00	10.61	0.50
153.00	483.00	2.23	65.36	0.91	3.97	3.73	0.84	2.71	1.10	0.00	0.00	0.00	0.00	0.00	0.00	10.76	0.50
140.00	700.00	2.17	65.22	0.95	4.03	3.75	0.84	2.62	1.10	0.00	0.00	0.00	0.00	0.00	0.00	10.92	0.50
127.00	917.00	2.11	65.07	1.01	4.10	3.78	0.84	2.53	1.10	0.00	0.00	0.00	0.00	0.00	0.00	11.10	0.50
113.00	1133.00	2.06	64.92	1.08	4.16	3.83	0.84	2.44	1.10	0.00	0.00	0.00	0.00	0.00	0.00	11.30	0.50
100.00	1350.00	2.01	64.77	1.16	4.23	3.90	0.84	2.35	1.10	0.00	0.00	0.00	0.00	0.00	0.00	11.51	0.50
87.00	1567.00	1.97	64.61	1.25	4.30	3.97	0.84	2.26	1.10	0.00	0.00	0.00	0.00	0.00	0.00	11.75	0.50
73.00	1783.00	1.93	64.46	1.37	4.36	4.07	0.84	2.17	1.10	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.50
60.00	2000.00	1.90	64.31	1.50	4.41	4.18	0.84	2.09	1.10	0.00	0.00	0.00	0.00	0.00	0.00	12.28	0.50

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

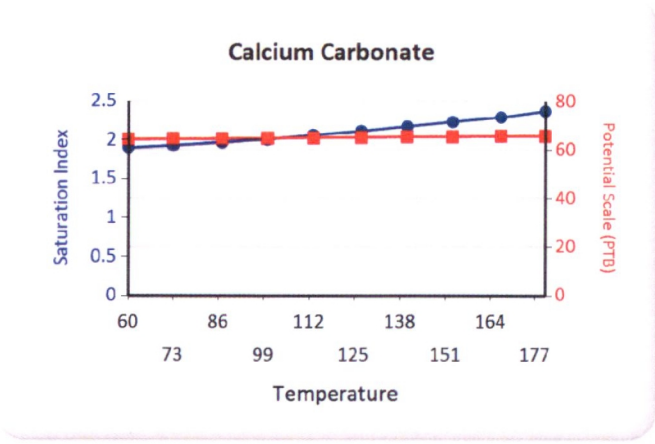
multi-chem®
A HALLIBURTON SERVICE

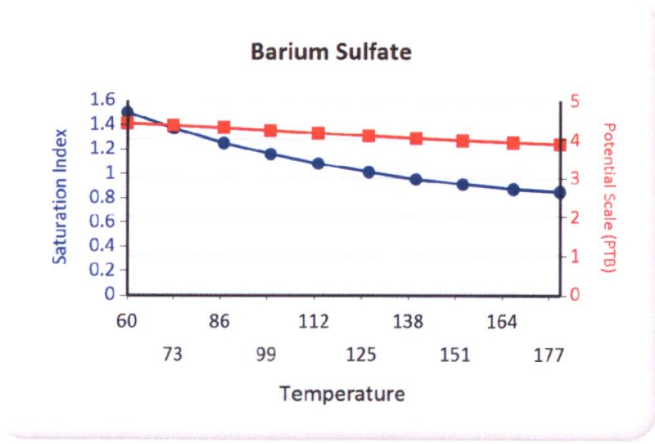
Water Analysis Report

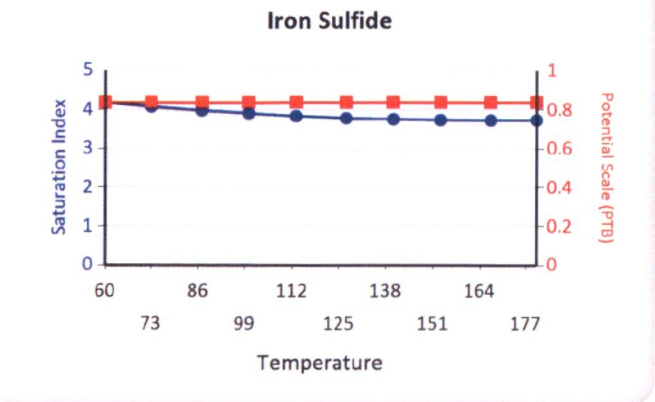
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	2.51	0.64	10.93	0.06	7.95	53.01	4.64	32.18	11.52	1.18
167.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	2.37	0.64	11.16	0.06	7.36	52.04	4.30	31.88	11.10	1.18
153.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	2.23	0.64	11.42	0.06	6.79	50.85	3.98	31.48	10.71	1.18
140.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07	0.64	11.70	0.06	6.22	49.27	3.66	30.91	10.32	1.18
127.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.64	12.01	0.06	5.64	47.28	3.34	30.12	9.94	1.18
113.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73	0.63	12.34	0.06	5.05	44.82	3.02	29.06	9.57	1.18
100.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54	0.63	12.70	0.06	4.47	41.88	2.70	27.69	9.20	1.18
87.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	0.62	13.10	0.06	3.87	38.41	2.38	25.98	8.84	1.18
73.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	0.60	13.52	0.06	3.27	34.37	2.06	23.89	8.49	1.18
60.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91	0.57	13.98	0.06	2.66	29.69	1.74	21.41	8.13	1.18

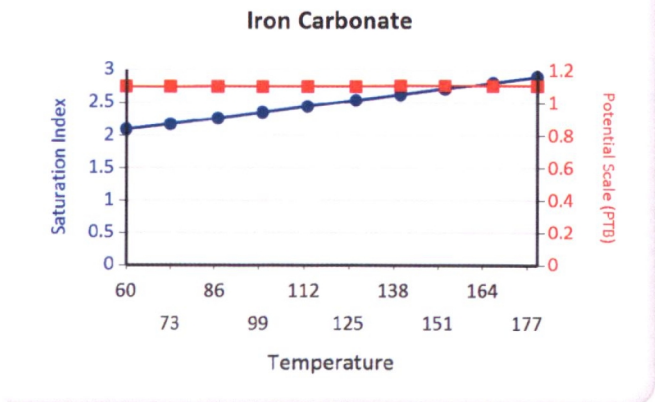
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate







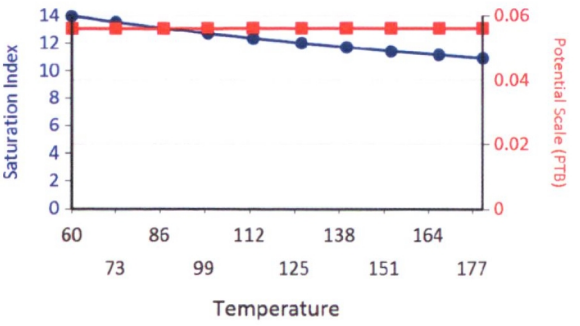


Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

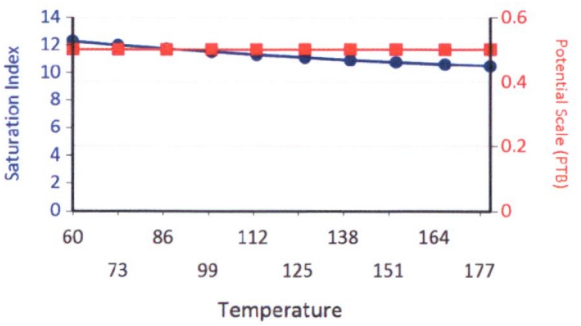
multi-chem®
A HALLIBURTON SERVICE

Water Analysis Report

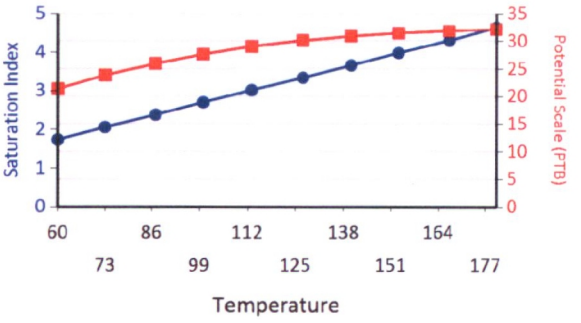
Lead Sulfide



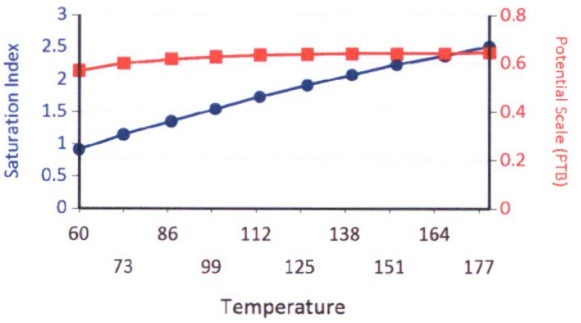
Zinc Sulfide



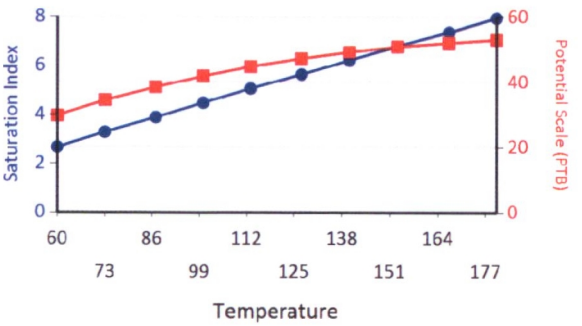
Ca Mg Silicate



Zinc Carbonate



Mg Silicate



• **Multi-Chem Analytical Laboratory**
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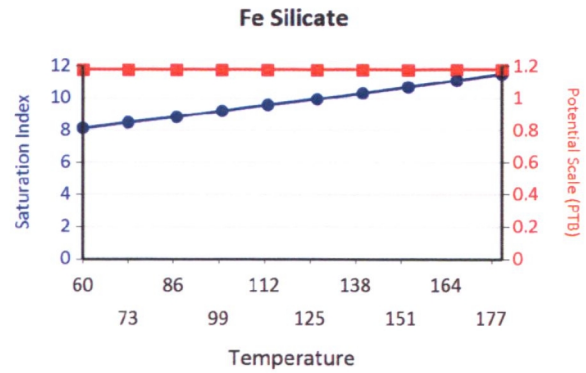
Water Analysis Report



PETROGLYPH EXECUTIVE OFFICES

February 10, 2016

Underground Injection Control Enforcement
U.S. Environmental Protection Agency
Atten: Don Breffle / Gary Wang
1595 Wynkoop St.
Denver, CO 80202

Mr. Breffle and Mr. Wang:

Please find enclosed the following annual reporting materials from Petroglyph Operating Company, Inc., for its Antelope Creek Water Flood Program, Permit Number UT2736-00000:

- Annual Disposal/Injection Well Monitoring Report for each of the 111 wells
- Related supporting documentation, to include copies of notices and successful Mechanical Integrity Tests
- Water Analysis reports

During 2015, POCI experienced a loss of mechanical integrity in the following wells:

- Ute Tribal 05-08
- Ute Tribal 05-10
- Ute Tribal 19-11
- Ute Tribal 21-04
- Ute Tribal 21-15
- Ute Tribal 29-12
- Ute Tribal 33-14D3

All wells were subsequently repaired and passed a Mechanical Integrity Test. Approvals were received for all wells.

Maximum Allowable Injection Pressure was exceeded for the Ute Tribal 16-07 (October 2015), Ute Tribal 18-14 (August 2015), Ute Tribal 29-12 (May-June 2015) as a result of performing step rate tests.

Thank you for your time. If any questions, please contact me at the following number: (208) 685-9711.

Best Regards,

Nicole Colby

Nicole Colby
Manager, Land & Regulatory Compliance; Petroglyph Energy, Inc.

Wang, Gary

From: Kevin Dickey <kdickey@pgei.com>
Sent: Tuesday, September 22, 2015 7:34 AM
To: Wang, Gary
Cc: Gallant, William; Suchomel, Bruce; Breffle, Don; Pardue-Welch, Kimberly; Rodrigo Jurado
Subject: FW: Step rate test for Petroglyph's Ute Tribal 29-12 injection Well (EPA ID UT20736-04523
Attachments: Antelope Creek Injection Water Analyses.pdf

Gary,

RE: Your September 11th email to Rodrigo Jurado denying Petroglyph's step rate request on the UT 29-12

I think we can agree on two points with respect to our step rate test on the UT 29-12 (plot below).

1. On our initial test using our water plant, the last point at 1711.5 psig was on the matrix trend line.
2. The first point on our test pumping water with the hot oiler at 1952.6 psig was not on the matrix trend line.

If this is the case, then we should, at a minimum, be allowed to inject into this well at pressures below 1711.5 psig as we clearly are not fracturing at this injection pressure.

As far as fluid characteristics coming into play, we are pumping water delivered by our injection system (both with the water plant and with the hot oiler). The TDS of our water barely changes between our different discharge facilities. Additionally, it doesn't matter if the tests are hours apart or days apart, as long as the rates and pressures have stabilized. If there is a flaw in our testing, in this instance, it is the length of the gap between point #5 and point #6. I understand this. But this was determined by the maximum plant output and the minimum hot oiler output.

But even so, we still see two distinct slopes:

- Matrix slope: a 1 bwpd increase in injection raises the pressure 2.9 psi.
- Fracturing slope: a 1 bwpd increase in injection raises the pressure 0.43 psi (nearly 1/7th as much)

What we are trying to accomplish is to get accurate data for reasonable expense. In this case, I believe we have accomplished that. Downhole gages aren't the answer as the only difference between surface pressures and downhole pressures are fluid gradient and friction pressure. At the rates we are pumping, friction is negligible and can be ignored. With respect to the fluid gradient, our fluid ranges from 12,805-15,659 mg/l TDS (see attached water analyses). The densities range from 1.0061-1.0081 g/ml which is equivalent to 0.4356-0.4365 psi/ft. The maximum variance in downhole pressure due to changing water characteristics at the top perforation would be 4 psi (1,797-1,801psi) or 0.2%. Downhole gages would cost approximately $5,000 and would not significantly improve the data set, and would definitely limit the number of tests we could afford per annum.

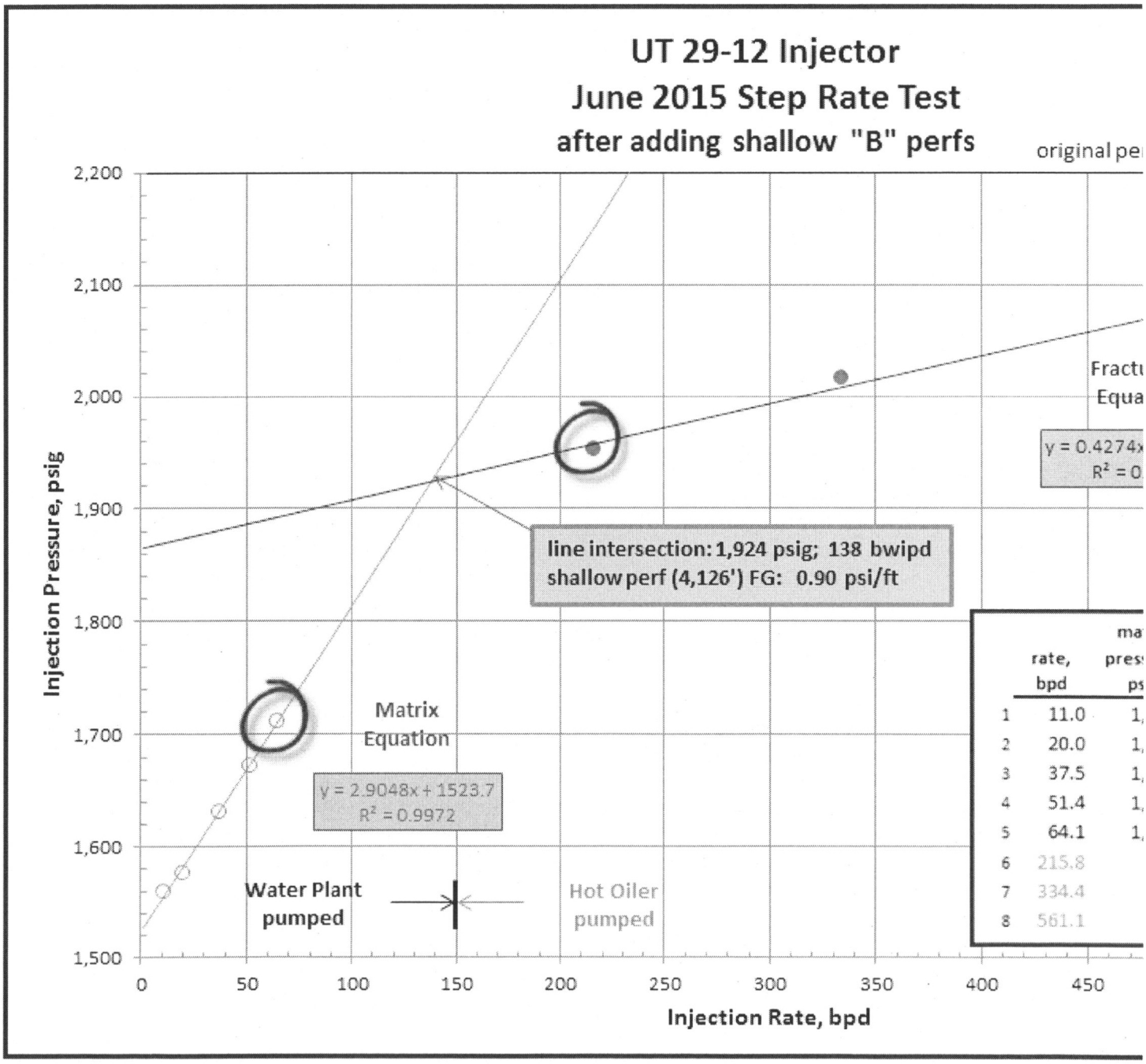
Likewise, if we get Halliburton out to pump constant time intervals of 2 hours each, our cost would be over $5,000 (or over $10k for pump truck + downhole gages) and the accuracy of the test would be suspect as you can't get stabilized pressures at matrix rates in the Green River formation in such a short time period increments. We don't have a single reservoir, but rather multiple independent Green River reservoirs completed in one wellbore. It takes significant time for injection to stabilize through the multiple reservoirs, that's why the longer time intervals give better data. Once the well is fracturing, however, stabilized rates are easily obtained in much shorter time increments, as was seen in the results pumped by the hot oiler.

We would request an allowable injection rate of 1711 psig for the UT 29-12 injector, which is clearly on the matrix line. Since our plant can't pump steadily above this pressure at this location, this would be adequate for our present purposes. If we need to get a higher injection pressure, in the future, we will rerun the step rate test.

Thanks for your consideration,

Kevin

Kevin Dickey
VP Operations
Petroglyph Energy, Inc.
960 Broadway Ave, Boise, ID 83706
o. 208.685.7654
m. 208.841.5354



From: Wang, Gary [mailto:wang.gary@epa.gov]
Sent: Friday, September 11, 2015 2:35 PM
To: Rodrigo Jurado
Cc: Breffle, Don; Pardue-Welch, Kimberly; Suchomel, Bruce; Gallant, William
Subject: Step rate test for Petroglyph's Ute Tribal 29-12 injection Well (EPA ID UT20736-04523

HI Rodrigo,

Per our conversation yesterday, Petroglyph submitted a step-rate test for the Ute Tribal 29-12 injection well in July 1, 2015. The step rate test conducted by Petroglyph was performed in two test events. The first event was conducted with fluid injected from the water plant pump, and a slope of a plot of pressure versus rate showed that the injection pressure remained below fracture parting pressure. The second event was conducted several weeks later with water injected from a hot oiler truck and a second slope was generated and assumed to be above fracture parting pressure because of the result of a different slope. The intersection for the two slopes were assumed by Petroglyph to be the well's surface fracture pressure.

Based on the review of the data, EPA is not approving the step rate test results based on the following reason:

- A breakdown point was not observed in either event. Because of the two separate events, the result from Petroglyph appear as two disparate slopes used to extrapolate the fracture pressure. Additionally, experimental conditions (e.g., fluid characteristics) may have changed between the two testing events.

We would like to see the step rate test be retested with the following conditions:

- The step rate test is to be conducted where the plot of the pressure versus rate is experimentally collected in one continuous event, beginning from below the fracture parting pressure, through the breakdown point, and into the above fracture parting pressure.
- After additional discussion with others in the office, we would also like to see both surface and bottom-hole pressures to be observed during the step rate test.

Please let me know if you have any questions.

Gary Wang
Underground Injection Control Enforcement
U.S. Environmental Protection Agency
1595 Wynkoop St.
Denver, CO 80202
PH: 303-312-6469
FAX: 303-312-6953
EMAIL: wang.gary@epa.gov

Wang, Gary

From: Rodrigo Jurado <rjurado@pgei.com>
Sent: Wednesday, July 01, 2015 10:54 AM
To: Wang, Gary
Cc: Breffle, Don; Kevin Dickey
Subject: Petroglyph Ute Tribal 29-12 Step Rate Test
Attachments: UT 29-12 Step Rate Test Summary and Analysis.pdf; UT 29-12 Step Rate Test -- full well-w new perfs-for EPA.xlsx

Good Morning Gary,
We've wrapped up our Step Rate Test for our Ute Tribal 29-12, EPA Permit # UT2736-04523. Please see the attached letter from Kevin Dickey, VP of Operations for Petroglyph Energy. The letter provides a summary of the test and a detailed analysis of the results. I've also attached a spreadsheet with the raw data from our injection monitoring system. Please let us know if you have any questions or need any additional information. The attached materials will also be mailed to your office. Have a great day and a happy Fourth of July Weekend.
Regards,

Rodrigo Jurado
Petroglyph Operating Company, Inc.
Regulatory Compliance Specialist
P.O. BOX 607
Roosevelt, UT 84066
OFFICE: (435) 722-5302
MOBILE: (435) 609-3239
FAX: (435) 722-9145

PETROGLYPH

Petroglyph Operating Company, Inc.
4116 W. 3000 South Ioka Lane
Roosevelt, UT 84066

P.O. Box 607
Roosevelt, UT 84066

435-722-2531
435-722-9145 fax

RECEIVED
JUL 06 2015
ECEJ

July 1, 2015

Don Breffle
Mail Code: 8ENF-UFO
US EPA Region 8
1595 Wyncoop Street
Denver, CO 80202-1129

RE: EPA AREA PERMIT NO. UT2736-04523
Change of maximum surface injection pressure
Ute Tribal 29-12 NWSW Sec. 29-T5S-R3W, Duchesne County, Utah

Mr. Breffle:
Petroglyph Operating Company performed a step rate test on the Ute Tribal 29-12 EPA Permit # UT2736-04523. Petroglyph is requesting that the maximum surface injection pressure be increased from 1900 psig to 1924 psig. The enclosed materials include a spreadsheet containing the data recorded using our injection monitoring system, and a summary and analysis of the step rate test.

If you need any more information please call at (435) 722-5302.

Sincerely,
Petroglyph Operating Co., Inc.

Rodrigo Jurado
Regulatory Compliance Specialist

Encl: SRT Summary and Analysis, SRT XLS File

UT20736-04523

Step Rate Test

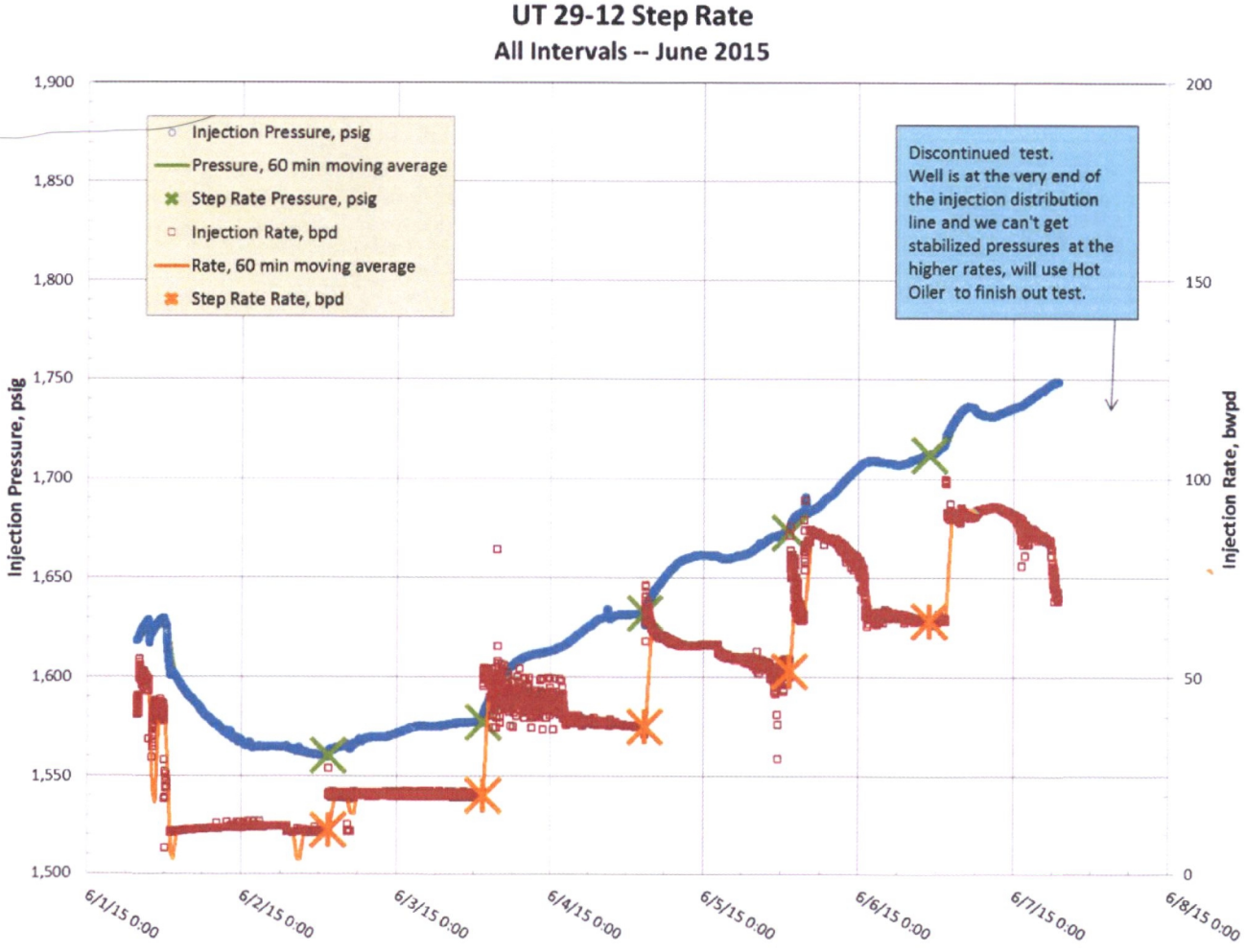
UT 29-12 Injector

Antelope Creek Field
Duchesne County, UT
EPA Permit #: UT2736-00000

On May 12, 2015, Petroglyph Energy began a workover on the UT 29-12 Injector. As part of that workover, we added new perforations within the permitted injection interval, but above the present perforations, necessitating a new step rate test to determine the maximum allowed injection pressure.

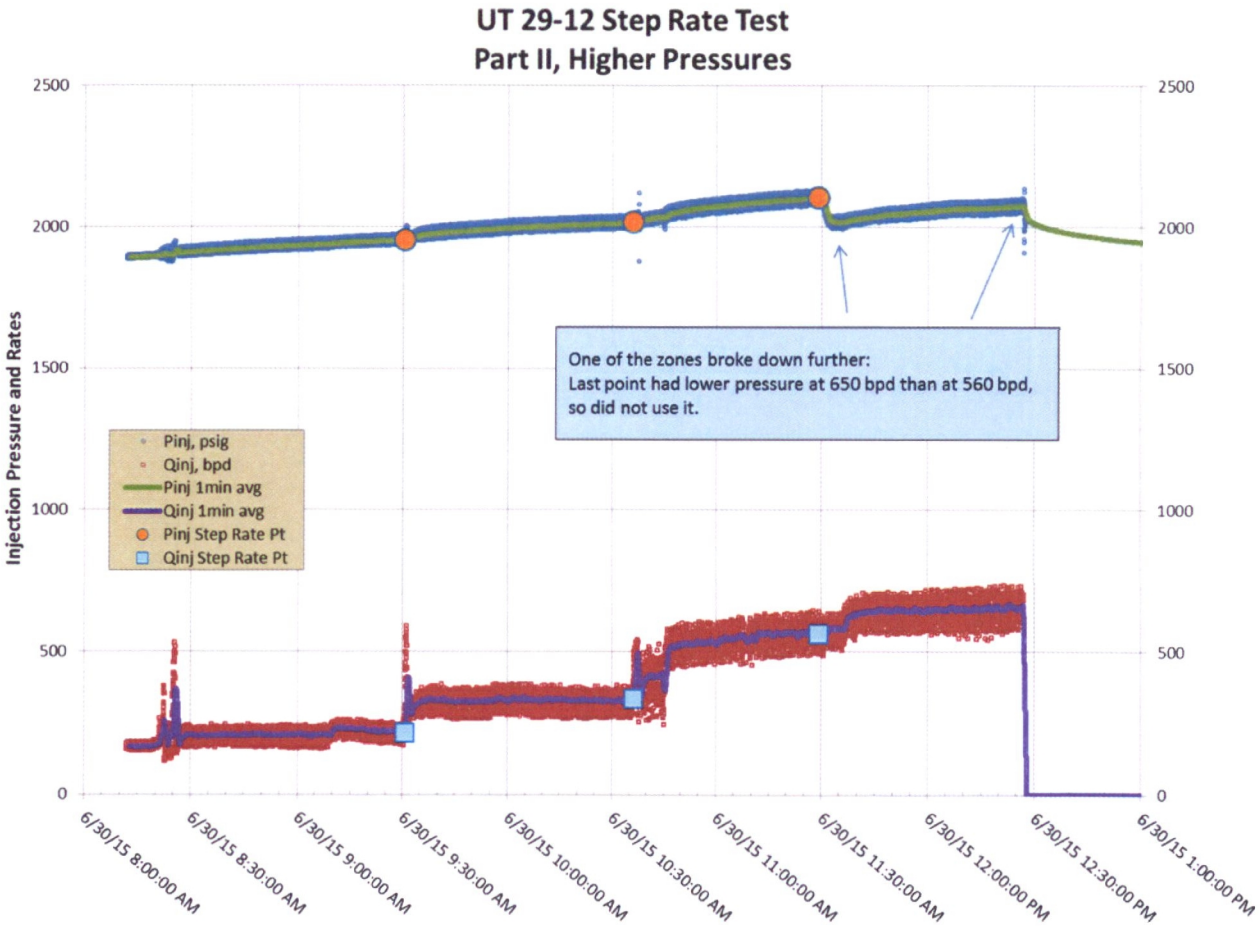
HISTORICALLY LOW PERMEABILITY (<0.1–3 md) PER UT. GEO. SURVEY (RMS-AAPG-2002)

Historically in Antelope Creek, it has been hard to obtain stabilized step rate points using constant one hour pumping intervals. This is due to the fact that at low rates (below the fracture gradient) in takes significantly longer for the rate and pressure to stabilize than one hour. To address that, we used our injection facility to pump the initial points and allowed the rate and pressure to stabilize over 24-hour periods, resulting in much better data:



Since the UT 29-12 is located at the end of the injection distribution system, we were limited to rates of approximately 65 bwpd, but five good stabilized points were obtained below the fracturing point. At this point the well was shut-in and injection stopped until we could line up a hot oiler that could steadily pump at rates under 0.5 bpm (<720 bpd).

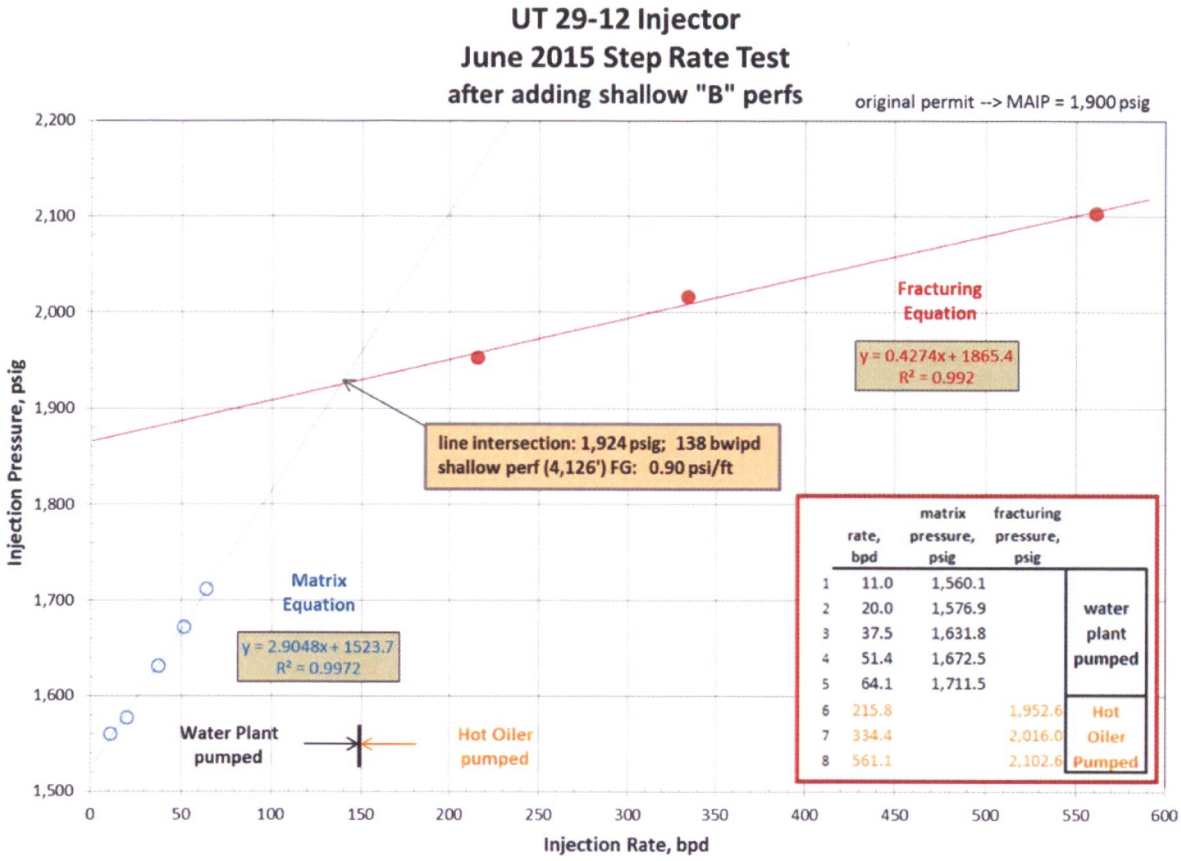
It took us a few weeks to locate a hot oiler that could steadily pump at lower rates. Once we did, we initiated minimal injection, using the water plant, at 25 bwipd for 24 hours prior to starting the second portion of our step rate test where we used the hot oiler to obtain pressure points above the fracturing gradient. Once the well began fracturing, it was much easier to obtain stabilized rates and pressures, and one hour pumping increments were adequate to obtain three points above the fracturing point.



All data was recorded using an electronic Halliburton meter. The data, logged using the water plant as the pumping device, was recorded on one minute increments. When we used the hot oiler, we recorded data on one second increments due to the shorter pumping intervals.

The resultant step rate plot indicates a fracturing point intersection at:

- **1,924 psig**
- **138 bwipd**



The R^2 of both the Matrix and Fracturing lines is >0.99 indicating extremely good data agreement and a good test. A spreadsheet with the data and graphs is attached.

Kevin Dickey
VP Operations
Petroglyph Energy, Inc.
960 Broadway Ave, Boise, ID 83706
o. 208.685.7654
m. 208.841.5354

March 24, 2015

RECEIVED
MAR 3 0 2015
Office of Enforcement, Compliance
and Environmental Justice (Water)

Don Breffle
Mail Code: 8ENF-UFO
US EPA Region 8
1595 Wyncoop Street
Denver, CO 80202-1129

RE: Underground Injection Control (UIC)
Notice of Violation
Loss of Mechanical Integrity
EPA Permit # UT2736-04523
Well No. Ute Tribal 29-12
Antelope Creek Oil Field
Duchesne County, Utah

Dear Mr. Breffle:

Please be advised, this is the action we plan to take to fix the loss of integrity on the 29-12 injector: we are going to release the packer and pull the tubing, inspecting the tubing as it comes out of the hole, make a bit and scraper run past the perforations, and circulate and clean the well. We will re-perforate existing perforations and add new perforations. Existing perforations are the following: 5532-34, 5518-24, 5512-14, 4874-82, 4749-53, 4622-24, 4614-17 & 4600-03. We plan to shoot the following: 5532-40, 5505-27, 5484-91, 5466-74, 5424-30, 5400-06, 5392-96, 5249-53, 5243-45, 5218-23, 4870-86, 4749-53, 4739-43, 4659-69, 4622-25, 4613-18, 4596-4604, 4350-55, 4264-74 & 4126-44. We will break down perfs, test their injection rates, then run in an Arrowset 1 Packer and perform an MIT on the casing to 1900psi. We will submit the results of the MIT for approval to re-inject. This work is expected to begin as soon as equipment becomes available. My direct number is 435-722-5302 if you wish to contact us.

Sincerely,
Petroglyph Operating Company, Inc.

Rodrigo Jurado
Regulatory Compliance Specialist

May 22, 2015

EPA
ATTN: Don Breffle
Region 8
1595 Wyncoop Street
Denver, CO 80202-8917

UIC Permit #UT2736-04523
Well ID: Ute Tribal 29-12
Ute Tribal No. 29-12, Duchesne County, Utah

Dear Mr. Breffle,

Please find enclosed the successful MIT. This test was performed to provide proof of integrity after rigged up on the well to address a loss of mechanical integrity and re-perforate the current injection interval and added additional perforations.

On May 12, 2015 we rigged up on the well, released the packer and pulled the tubing, scan logging on the way out. We laid down the whole string. We picked up new tubing, made a bit and scraper run past all perforations to 5,691' and circulated and cleaned the well. We then perforated the following: 5,532'-40', 5,505'-27', 5,484'-91', 5,466'-74', 5,424'-30', 5,400'-06', 5,392'-96', 5,249'-53', 5,243'-45', 5,218'-23', 4,870'-86', 4,749'-53', 4,739'-43', 4,659'-69', 4,622'-25', 4,613'-18', 4,596'-4,604', 4,350'-55', 4,264'-74' & 4,126'-44'. Perforations were made using were Titan ~~3-1/8"~~ 4" guns containing 19 grams charges, 0.36" EHD, 16.33" TTP, 4 SPF @ 120° Phased. We isolated various intervals and tested their injection rates. We pulled all tools and ran in with a new Arrowset 1 Packer and new tubing, breaking and doping all joints on the way in, then set the packer, pressure tested the tubing and performed and MIT on the casing to 1,900 Psi with no loss. The plan going forward is to perform a step rate test on the well, analyze the results and calculate a new MAIP, and submit results for approval to resume injection.

My direct number is 435-722-5302 if you wish to contact us.

Sincerely,

Rodrigo Jurado
Regulatory Compliance Spc

Encl: MIT

	GREEN	BLUE	CBI
TAB		2	

Mechanical Integrity Test
Tubing/Casing Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program
1595 Wynkoop Street, Denver, CO 80202

EPA Witness: _____ Date: 5/20/15

Test conducted by: CHAD STEVENSON

Others present: _____

Well Name: 29-12 Type: ER SWD **Status: AC TA UC**

Field: ANTELOPE CREEK

Location: 29-12 Sec: ___ T ___ N / S R ___ E / W County: DUCHESNE State: UT

Operator: PETROGLYPH ENERGY

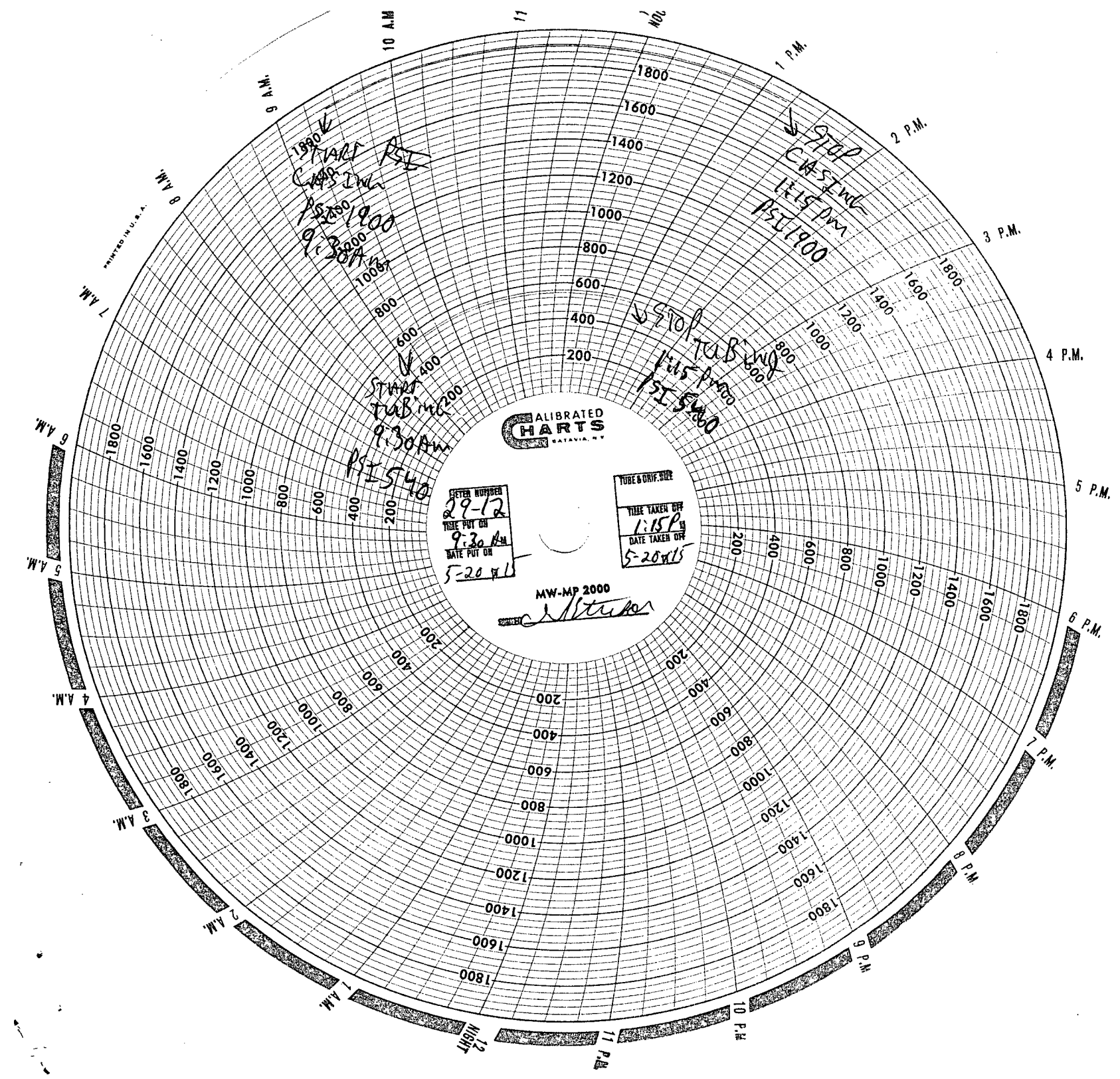
Last MIT: ___/___/___ **Maximum Allowable Pressure:** _____ **PSIG**

Regularly scheduled test? [ ] Yes [ ] No
Initial test for permit? [ ] Yes [ ] No
Test after well rework? [X] Yes [ ] No

Well injecting during test? If Yes, rate: _____ **bpd**
Pre-test annulus pressure: _____ **psig**

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING PRESSURE RECORD			
Initial Pressure	540 psig	psig	psig
End of test pressure	540 psig	psig	psig
CASING / TUBING ANNULUS PRESSURE RECORD			
0 minutes	1900 psig	psig	psig
5 minutes	1900 psig	psig	psig
10 minutes	1900 psig	psig	psig
15 minutes	1900 psig	psig	psig
20 minutes	1900 psig	psig	psig
25 minutes	1900 psig	psig	psig
30 minutes	1900 psig	psig	psig
3 HOURS ~~minutes~~	1900 psig	psig	psig
_____ minutes	psig	psig	psig
RESULT	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail

Does the annulus pressure build back up after the test ? If Yes, _____ **psig.**


CALIBRATED CHARTS
BATAVIA, N.Y.
METER NUMBER
29-12
TIME PUT ON
9:30 AM
DATE PUT ON
5-20 W 15
TUBE & ORIF. SIZE
TIME TAKEN OFF
1:15 PM
DATE TAKEN OFF
5-20 W 15
MW-MP 2000
START CAS INC PSI 1900
9:30 AM
PSI 540
STOP CAS INC
1:15 PM
PSI 1900
STOP TUB INC
1:15 PM
PSI 540
START TUB INC
9:30 AM
PSI 540
PRINTED IN U.S.A.

May 22, 2015

Don Breffle
Mail Code: 8ENF-UFO
US EPA Region 8
1595 Wyncoop Street
Denver, CO 80202-1129

RE: Underground Injection Control (UIC)
Notice of Violation
Loss of Mechanical Integrity
EPA Permit #UT2736-04521
Well No. Ute Tribal 19-11
Antelope Creek Oil Field
Duchesne County, Utah

Dear Mr. Breffle:

Please be advised that on May 21, 2015 we lost Mechanical Integrity on the Ute Tribal 19-11 Injection Well. My direct number is 435-722-5302 if you wish to contact us.

Sincerely,
Petroglyph Operating Company, Inc.

Rodrigo Jurado
Regulatory Compliance Specialist

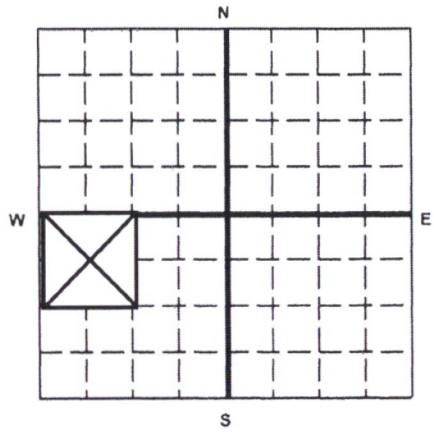
OMB No. 2040-0042 Approval Expires 12/31/2011

United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee	Name and Address of Surface Owner
Petroglyph Operating Company, Inc. 2258 P.O. Box 7608 Boise, Idaho 83709	Ute Indian Tribe P.O. Box 70 Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-04523

Surface Location Description

___ 1/4 of ___ 1/4 of NW 1/4 of SW 1/4 of Section 29 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1865 ft. frm (N/S) S Line of quarter section and 699 ft. from (E/W) W Line of quarter section.

WELL ACTIVITY	TYPE OF PERMIT
[ ] Brine Disposal	[ ] Individual
[X] Enhanced Recovery	[X] Area
[ ] Hydrocarbon Storage	Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 29-12

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	14	1814	1858	140		0	0
February	14	1849	1860	116		0	0
March	14	1822	1833	167		0	0
April	14	1845	1862	254		0	0
May	14	1827	1844	190		0	0
June	14	1842	1862	205		0	0
July	14	1733	1833	104		0	0
August	14	1817	1839	199		0	0
September	14	1772	1799	107		0	0
October	14	1838	1839	185		0	0
November	14	1840	1848	125		0	0
December	14	1839	1861	135		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		2/10/2015

EPA Form 7520-11 (Rev. 12-08)

U2 Entered
Date 3/31/15
Initial SW

TAB	GREEN	BLUE	CBI
		2	

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

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Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**UTE TRIBAL 29-12 INJ, DUCHESNE**	Lab Tech:	**Gary Winegar**
Sample Point:	**WELLHEAD**		
Sample Date:	**1/7/2015**		
Sample ID:	**WA-297522**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	1/14/2015
System Temperature 1 (°F):	160
System Pressure 1 (psig):	1300
System Temperature 2 (°F):	80
System Pressure 2 (psig):	15
Calculated Density (g/ml):	1.0042
pH:	9.00
Calculated TDS (mg/L):	11031.28
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	20.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	2376.34	Chloride (Cl):	5000.00
Potassium (K):	35.60	Sulfate (SO_4):	82.00
Magnesium (Mg):	30.12	Bicarbonate (HCO_3):	3416.00
Calcium (Ca):	48.15	Carbonate (CO_3):	
Strontium (Sr):	4.82	Acetic Acid (CH_3COO)	
Barium (Ba):	8.17	Propionic Acid (C_2H_5COO)	
Iron (Fe):	0.51	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	0.29	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.17	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.17	Silica (SiO_2):	28.94

Notes:
B=5.23 Al=.04 Li=1.17

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	2.32	41.90	1.48	4.69	3.84	0.28	2.21	0.37	0.00	0.00	0.00	0.00	0.00	0.00	11.70	0.15
88.00	157.00	2.33	41.91	1.39	4.65	3.77	0.28	2.25	0.37	0.00	0.00	0.00	0.00	0.00	0.00	11.52	0.15
97.00	300.00	2.34	41.92	1.31	4.61	3.70	0.28	2.29	0.37	0.00	0.00	0.00	0.00	0.00	0.00	11.36	0.15
106.00	443.00	2.35	41.92	1.24	4.57	3.65	0.28	2.33	0.37	0.00	0.00	0.00	0.00	0.00	0.00	11.20	0.15
115.00	585.00	2.37	41.93	1.18	4.52	3.60	0.28	2.37	0.37	0.00	0.00	0.00	0.00	0.00	0.00	11.05	0.15
124.00	728.00	2.39	41.94	1.12	4.47	3.56	0.28	2.41	0.37	0.00	0.00	0.00	0.00	0.00	0.00	10.91	0.15
133.00	871.00	2.41	41.95	1.06	4.42	3.52	0.28	2.45	0.37	0.00	0.00	0.00	0.00	0.00	0.00	10.78	0.15
142.00	1014.00	2.43	41.96	1.02	4.37	3.50	0.28	2.49	0.37	0.00	0.00	0.00	0.00	0.00	0.00	10.66	0.15
151.00	1157.00	2.45	41.97	0.97	4.31	3.47	0.28	2.52	0.37	0.00	0.00	0.00	0.00	0.00	0.00	10.54	0.15
160.00	1300.00	2.48	41.98	0.93	4.26	3.46	0.28	2.56	0.37	0.00	0.00	0.00	0.00	0.00	0.00	10.43	0.15

		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.18	13.74	0.07	5.51	34.75	3.15	17.65	8.91	0.40
88.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	0.19	13.45	0.07	5.84	34.86	3.31	17.77	9.07	0.40
97.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46	0.19	13.18	0.07	6.18	34.93	3.48	17.87	9.24	0.40
106.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57	0.19	12.92	0.07	6.52	34.99	3.66	17.95	9.43	0.40
115.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68	0.19	12.68	0.07	6.87	35.02	3.84	18.02	9.63	0.40
124.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78	0.19	12.44	0.07	7.22	35.05	4.02	18.07	9.83	0.40
133.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88	0.19	12.23	0.07	7.58	35.06	4.20	18.12	10.04	0.40
142.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97	0.19	12.02	0.07	7.93	35.07	4.39	18.15	10.25	0.40
151.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	2.06	0.19	11.82	0.07	8.29	35.08	4.58	18.18	10.47	0.40
160.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	2.15	0.19	11.64	0.07	8.64	35.08	4.77	18.20	10.70	0.40

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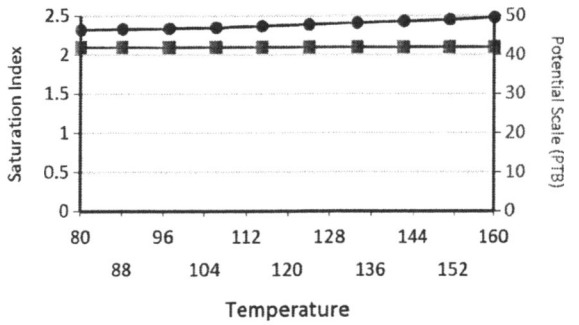
Water Analysis Report

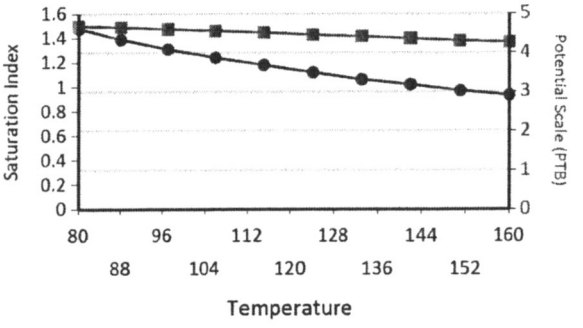
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

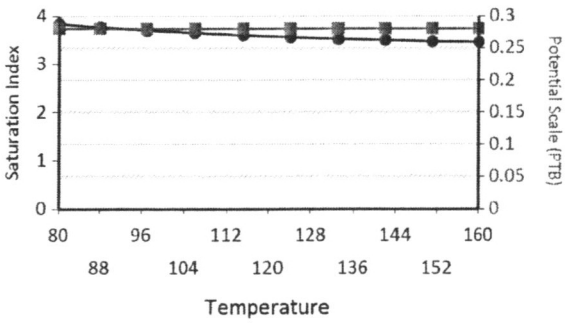
Calcium Carbonate



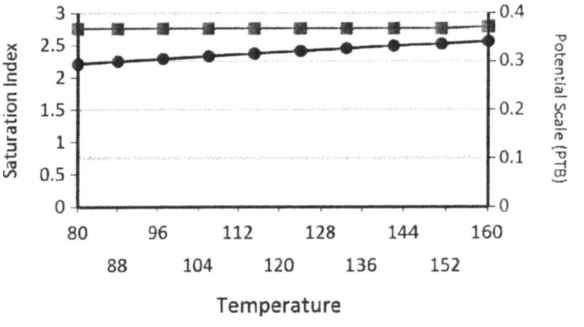
Barium Sulfate



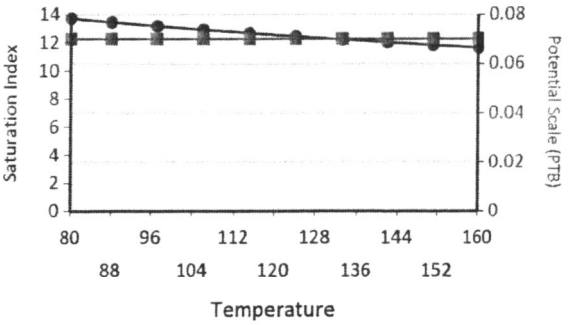
Iron Sulfide



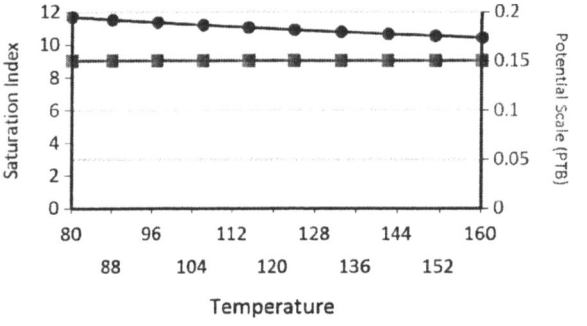
Iron Carbonate



Lead Sulfide



Zinc Sulfide



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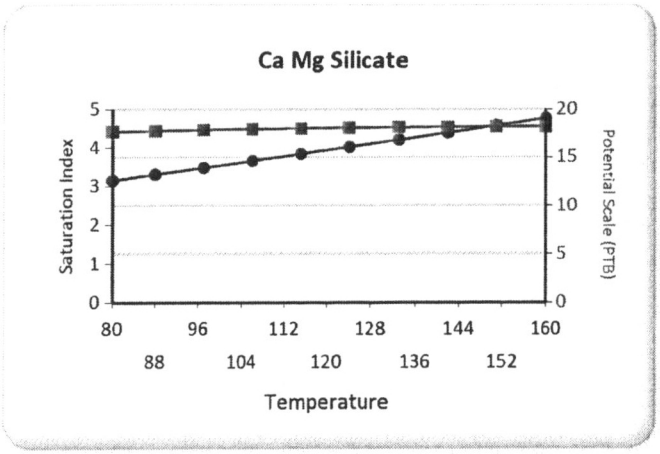
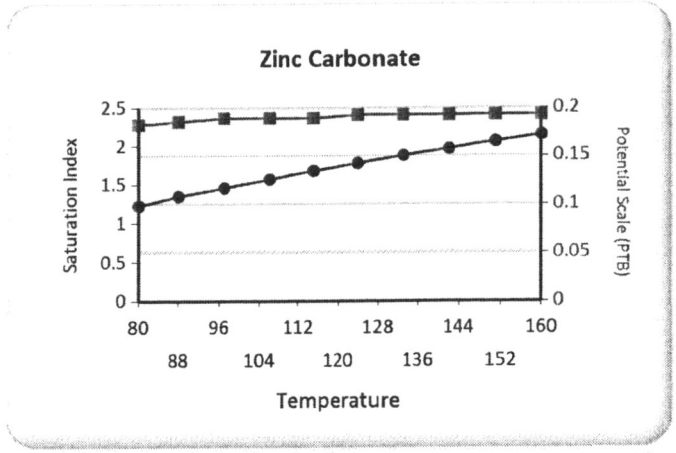
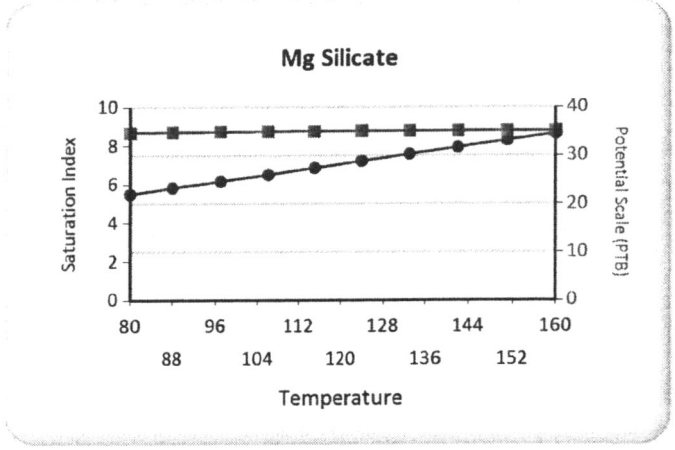
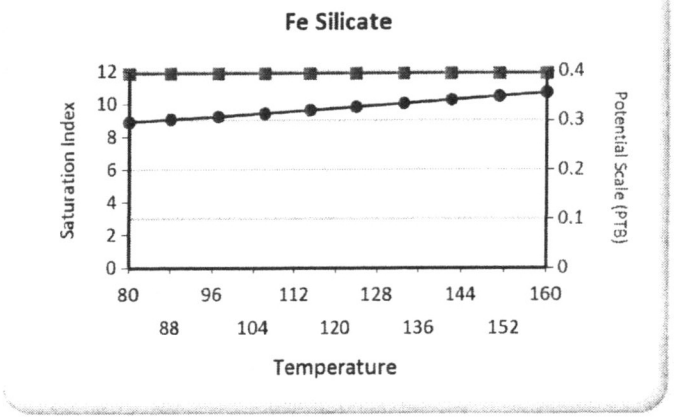








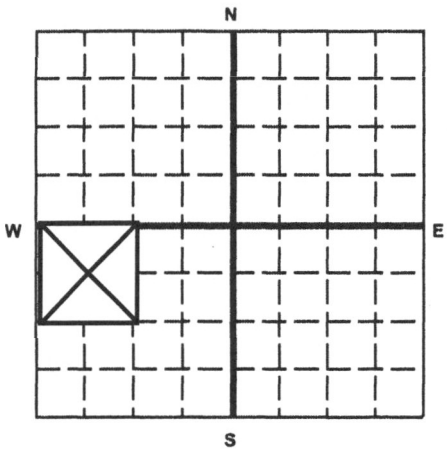
OMB No. 2040-0042 Approval Expires 12/31/2011

United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee	Name and Address of Surface Owner
Petroglyph Operating Company, Inc. 2258 P.O. Box 7608 Boise, Idaho 83709	Ute Indian Tribe P.O. Box 70 Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-04523

Surface Location Description

[ ] 1/4 of [ ] 1/4 of [NW] 1/4 of [SW] 1/4 of Section [29] Township [5S] Range [3W]

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location [1865] ft. frm (N/S) [S] Line of quarter section and [699] ft. from (E/W) [W] Line of quarter section.

WELL ACTIVITY
- [ ] Brine Disposal
- [X] Enhanced Recovery
- [ ] Hydrocarbon Storage

TYPE OF PERMIT
- [ ] Individual
- [X] Area

Number of Wells [111]

Lease Name [Ute Indian Tribe] Well Number [UTE TRIBAL 29-12]

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	13	1810	1835	156		0	0
February	13	1817	1839	146		0	0
March	13	1808	1874	210		0	0
April	13	1839	1866	128		0	0
May	13	1838	1860	302		0	0
June	13	1850	1855	324		0	0
July	13	1834	1860	341		0	0
August	13	1845	1863	415		0	0
September	13	1817	1871	97		0	0
October	13	1833	1860	104		0	0
November	13	1844	1853	219		0	0
December	13	1830	1834	313		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		2/11/2014

EPA Form 7520-11 (Rev. 12-08)

GREEN BLUE CBI
2

U2 Entered
Date 3/21/14
Initial DB

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Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH ENERGY INC**
Well Name: **UTE TRIBAL 29-12 INJ**
Sample Point: **Wellhead**
Sample Date: **1/8/2014**
Sample ID: **WA-262986**

Sales Rep: **James Patry**
Lab Tech: **Gary Winegar**

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	1/15/2014
System Temperature 1 (°F):	180
System Pressure 1 (psig):	1300
System Temperature 2 (°F):	60
System Pressure 2 (psig):	15
Calculated Density (g/ml):	1.004
pH:	8.00
Calculated TDS (mg/L):	10290.74
CO2 in Gas (%):	
Dissolved CO2 (mg/L)):	0.00
H2S in Gas (%):	
H2S in Water (mg/L):	4.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	3420.16	Chloride (Cl):	4000.00
Potassium (K):	54.00	Sulfate (SO_4):	222.00
Magnesium (Mg):	35.00	Bicarbonate (HCO_3):	2440.00
Calcium (Ca):	76.00	Carbonate (CO_3):	
Strontium (Sr):	4.30	Acetic Acid (CH_3COO)	
Barium (Ba):	2.00	Propionic Acid (C_2H_5COO)	
Iron (Fe):	13.00	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	0.28	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.15	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.30	Silica (SiO_2):	23.54

Notes:
B=4 Al=.04 Li=.78

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	1.39	57.22	1.49	1.15	3.75	3.63	2.48	9.41	0.00	0.00	0.00	0.00	0.00	0.00	10.35	0.15
73.00	157.00	1.38	56.80	1.34	1.14	3.59	3.63	2.53	9.42	0.00	0.00	0.00	0.00	0.00	0.00	10.03	0.15
86.00	300.00	1.42	57.65	1.21	1.12	3.50	3.63	2.62	9.42	0.00	0.00	0.00	0.00	0.00	0.00	9.77	0.15
100.00	443.00	1.45	58.53	1.10	1.10	3.42	3.63	2.70	9.43	0.00	0.00	0.00	0.00	0.00	0.00	9.54	0.15
113.00	585.00	1.50	59.42	1.00	1.07	3.37	3.63	2.79	9.44	0.00	0.00	0.00	0.00	0.00	0.00	9.34	0.15
126.00	728.00	1.55	60.29	0.92	1.05	3.33	3.63	2.87	9.44	0.00	0.00	0.00	0.00	0.00	0.00	9.15	0.15
140.00	871.00	1.60	61.11	0.84	1.02	3.31	3.63	2.95	9.44	0.00	0.00	0.00	0.00	0.00	0.00	8.98	0.15
153.00	1014.00	1.66	61.89	0.78	1.00	3.30	3.63	3.03	9.44	0.00	0.00	0.00	0.00	0.00	0.00	8.83	0.15
166.00	1157.00	1.72	62.60	0.73	0.97	3.30	3.63	3.11	9.45	0.00	0.00	0.00	0.00	0.00	0.00	8.70	0.15
180.00	1300.00	1.78	63.23	0.69	0.95	3.32	3.63	3.18	9.45	0.00	0.00	0.00	0.00	0.00	0.00	8.58	0.15

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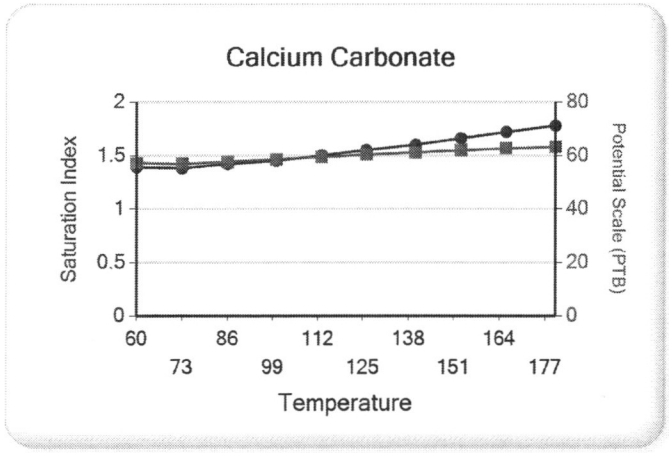
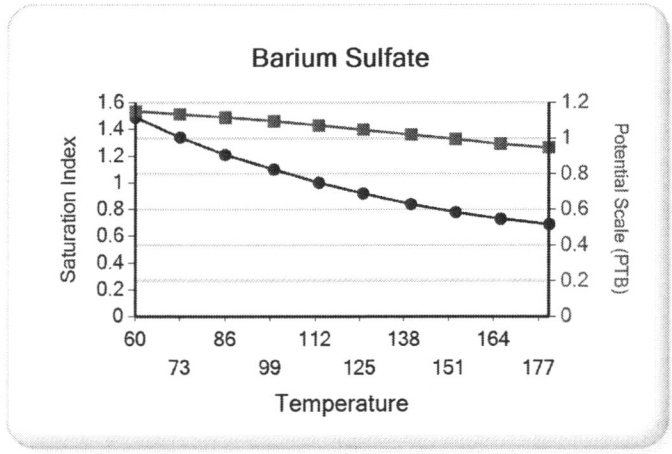
Water Analysis Report

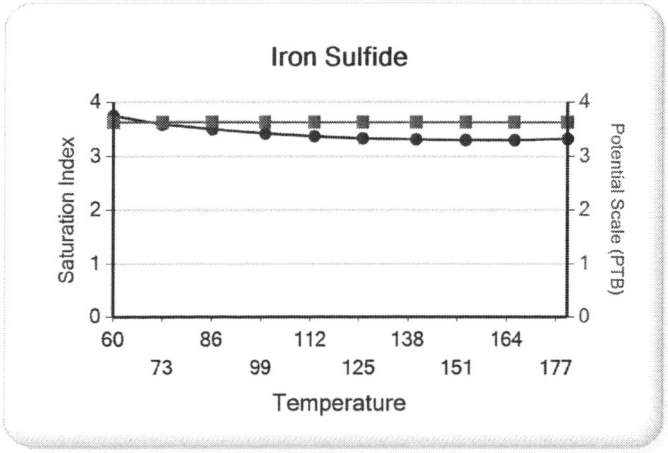
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.62	0.06	0.00	0.00	0.00	0.00	6.68	9.94
73.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.12	0.06	0.00	0.00	0.00	0.00	6.80	9.95
86.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.07	11.69	0.06	0.00	0.00	0.00	0.00	7.17	9.99
100.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.11	11.30	0.06	0.23	1.86	0.00	0.00	7.57	10.02
113.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.14	10.95	0.06	0.89	6.70	0.02	0.36	8.00	10.05
126.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.15	10.62	0.06	1.56	11.56	0.40	3.06	8.44	10.07
140.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91	0.16	10.33	0.06	2.23	16.22	0.78	5.64	8.91	10.08
153.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	0.17	10.06	0.06	2.91	20.37	1.17	7.97	9.38	10.09
166.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	0.18	9.81	0.06	3.58	23.69	1.56	9.95	9.87	10.10
180.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36	0.18	9.59	0.06	4.26	25.98	1.95	11.52	10.36	10.10

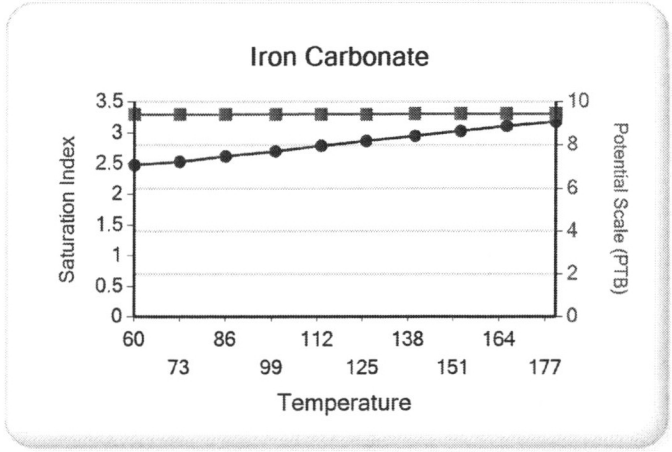
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Lead Sulfide Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

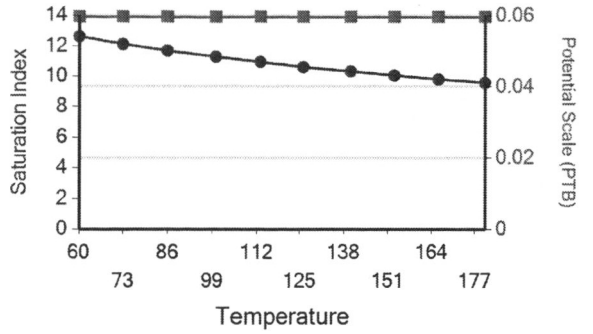




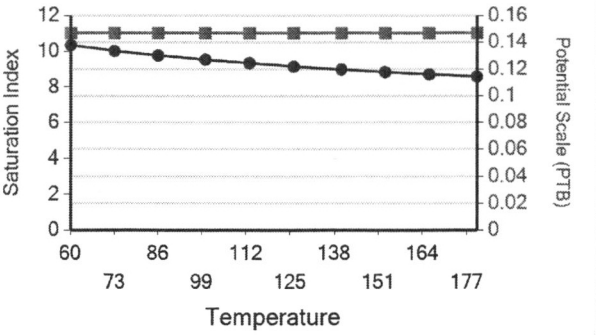




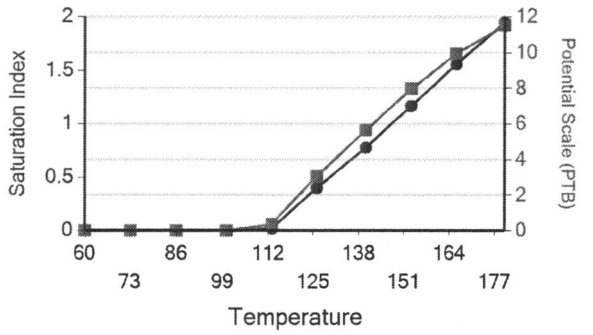
Lead Sulfide



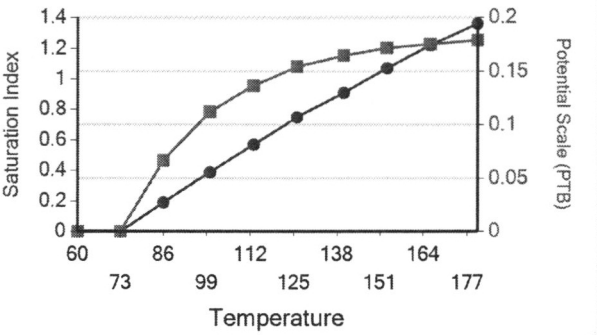
Zinc Sulfide



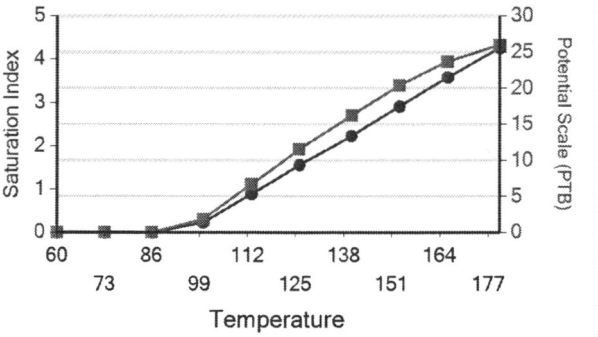
Ca Mg Silicate



Zinc Carbonate



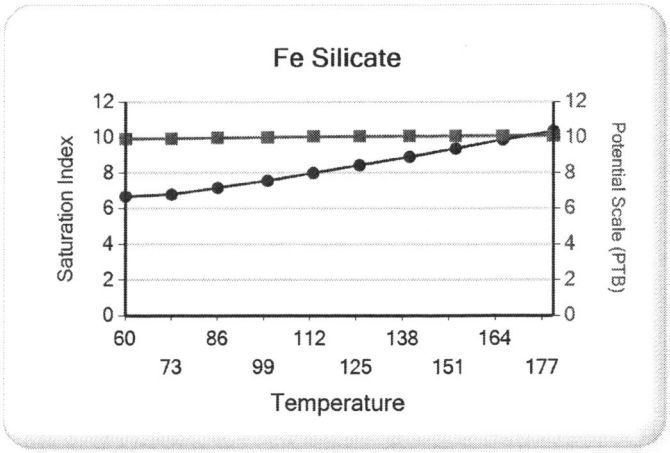
Mg Silicate



Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

multi-chem®
A HALLIBURTON SERVICE

Water Analysis Report



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

APR 17 2000

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Micheal Safford
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

Re: AUTHORIZATION TO COMMENCE INJECTION
Ute Tribal #29-12 (UT04523)
Antelope Creek Field
EPA AREA PERMIT UT2736-00000
Duchesne County, Utah

Dear Mr. Safford:

Thank you for submitting information pertaining to Ute Tribal #29-12 to the Environmental Protection Agency (EPA) Region VIII Groundwater Program. Requirements of UIC Area Permit UT2736-00000 Part II Sections (C)(2) "Prior To Commencing Injection" required submittal of the following information:

1. Well Rework Record (*EPA Form 7520-12*) with after conversion well schematic,
2. Successfully run Mechanical Integrity Test (MIT) with pressure chart,
3. Injection zone fluid pore pressure survey.

All required information has been submitted, and has been reviewed and approved by the EPA. Petroglyph has complied with all pertinent conditions of UIC Area Permit UT2736-00000 Part II Section (C)(2). Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal #29-12 under the conditions of UIC Area Permit UT2736-00000. The Director has determined that the **maximum surface injection pressure for the Ute Tribal #29-12 shall not exceed 1900 psig.**

Please be reminded that it is the responsibility of the permittee to be aware of, and to comply with, all conditions of the Permit. Effective upon receipt of this letter, EPA administration of this well is transferred to Mr. Bahram Jafari, Compliance Officer in the Office of Enforcement, Compliance, and Environmental Justice Technical Enforcement Program, who is your point of contact for routine compliance matters and reports.

Please send all reporting forms and other required correspondence to Mr. Jafari at the address listed below, referencing EPA WELL ID: UT04523 on all reports and correspondence.

Mr. Bahram Jafari,
Technical Enforcement Program, Mail Code 8ENF-T
U.S. Environmental Protection Agency
999 18th Street, Suite 500
Denver, Colorado, USA, 80202-2466

If you have any questions concerning this authorization or the Permit, please contact Mr. Dan Jackson of my staff at 303.312.6155 or Mr. Jafari at 303.312.6459.

Sincerely,

D. Edwin Hogle
Director
Ground Water Program

cc: Mr. Ronald McCook, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office

Is your RETURN ADDRESS completed on the reverse side?

SENDER: 4/17/00 CW 3702C

APR 18 2000

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

(Ute Tribal #29-12)

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Micheal Safford
Operations Coordinator
Petroglyph Operating Co., Inc.
P.O. BOX 607
Roosevelt, UT 84066

4a. Article Number

Z 241 355 333

4b. Service Type

☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

4/24/00

5. Received By: *(Print Name)*

6. Signature: *(Addressee or Agent)*

X [signature]

8. Addressee's Address *(Only if requested and fee is paid)*

(rec'd LC)

MAY 5 2000

PS Form **3811**, December 1994 A 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

Z 241 445 333

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to Mr. Micheal Safford	
Street & Number Operations Coordinator	
Post Office, State, & ZIP Code Petroglyph Operating Co., Inc. P.O. BOX 607	
Postage Roosevelt, UT 84066	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995

Mechanical Integrity Test

Casing or Annulus Pressure Mechanical Integrity Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Direct Implementation Program 8P-W-GW
999 18th Street, Suite 500 Denver, CO 80202-2466

EPA Witness: _____ Date: ____/____/____

Test conducted by: _____

Others present: _____

Well Name:_____ Type: ER SWD Status: AC TA UC

Field:_____

Location:_____ Sec:____ T___N/S R____E/W County:_____State:___

Operator:_____

Last MIT: ____/____/____ Maximum Allowable Pressure: _____ PSIG

Is this a regularly scheduled test? [ ] Yes [ ] No

Initial test for permit? [ ] Yes [ ] No

Test after well rework? [ ] Yes [ ] No

Well injecting during test? [ ] Yes [ ] No If Yes, rate: _____ bpd

Pre-test casing/tubing annulus pressure: _____ psig

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING PRESSURE			
Initial Pressure	psig	psig	psig
End of test pressure	psig	psig	psig
CASING / TUBING ANNULUS PRESSURE			
0 minutes	psig	psig	psig
5 minutes	psig	psig	psig
10 minutes	psig	psig	psig
15 minutes	psig	psig	psig
20 minutes	psig	psig	psig
25 minutes	psig	psig	psig
30 minutes	psig	psig	psig
minutes	psig	psig	psig
minutes	psig	psig	psig
RESULT	[ ] Pass [ ]Fail	[ ] Pass [ ]Fail	[ ] Pass [ ]Fail

Does the annulus pressure build back up after the test ? [ ] Yes [ ] No

(over)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

AUG - 9 1995

SUBJECT: GROUND WATER SECTION GUIDANCE NO. 37
Demonstrating Part II (external) Mechanical Integrity for a Class II injection well permit.

FROM: Tom Pike, Chief
UIC Direct Implementation Section

TO: All Section Staff
Montana Operations Office

During the review for a Class II injection well permit, consideration must be given to the mechanical integrity (MI) of the well. MI demonstrates that the well is in sound condition and that the well is constructed in a manner that prevents injected fluids from entering any formation other than the authorized injection formation.

A demonstration of MI is a two part process:

PART I - **INTERNAL MECHANICAL INTEGRITY** is an assurance that there are no significant leaks in the casing/tubing/packer system.

PART II - **EXTERNAL MECHANICAL INTEGRITY** demonstrates that after fluid is injected into the formation, the injected fluids will not migrate out of the authorized injection interval through vertical channels adjacent to the wellbore.

A Class II injection well may demonstrate Part II MI by showing that injected fluids remain within the authorized injection interval. This may be accomplished as follows:

1) Cement bond log showing 80% bond through the an appropriate interval (Section Guidance 34),

2) Radioactive tracer survey conducted according to a EPA-approved procedure, or

3) Temperature survey conducted according to a EPA-approved procedure (Section Guidance 38).

For each test option above, the operator of the injection well should submit a plan for conducting the test. The plan will then be approved (or modified and approved) by EPA. EPA's pre-approval of the testing method will assure the operator that the test is conducted consistent with current EPA guidance, and that the test will provide meaningful results.

Part II MI may be demonstrated either before or after issuing the Final Permit. However, if Part II is to be demonstrated after the Final Permit is issued, a provision in the permit will require the demonstration of Part II MI. The well will also be required to pass Part II MI prior to granting authorization to inject.

Radioactive tracer surveys and temperature surveys require that the well be allowed to inject fluids as part of the procedure. In these cases, a well that has shown no other demonstration of Part II MI will be allowed to inject only that volume of fluid that is necessary to conduct the appropriate test.

After the results of the test proves that the well has passed Part II MI, the well will be given authorization to begin full injection operations.

If any of the tests show a lack of Part II MI, the well will be repaired and retested, or plugged (See Headquarters Guidance #76).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

CONCURRENCE COPY

APR 17 2000

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Micheal Safford
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

Re: AUTHORIZATION TO COMMENCE INJECTION
Ute Tribal #29-12 (UT04523)
Antelope Creek Field
EPA AREA PERMIT UT2736-00000
Duchesne County, Utah

Dear Mr. Safford:

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

CONCURRENCE COPY

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED OK!

Mr. Micheal Safford
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

Re: **AUTHORIZATION TO COMMENCE INJECTION**
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SPACES

Please be reminded that it is the responsibility of the permittee to be aware of, and to comply with, all conditions of

CEW 4/12/00

8P-W-GW DJackson 4-13-00

8P-W-GW 4/13/00 LG mailed 4/13/00 LG

4/13/00

Please be reminded that it is the responsibility of the permittee to be aware of, and to comply with, all conditions of the Permit. Effective upon receipt of this letter, EPA administration of this well is transferred to Mr. Bahram Jafari, Compliance Officer in the Office of Enforcement, Compliance, and Environmental Justice Technical Enforcement Program, who is your point of contact for routine compliance matters and reports.

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U.S. Environmental Protection Agency
999 18th Street, Suite 500
Denver, Colorado, USA, 80202-2466

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Sincerely,

D. Edwin Hogle
Director
Ground Water Program

cc: Mr. Ronald McCook, Chairman
Uintah & Ouray Business Committee
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Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

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BIA - Uintah & Ouray Agency

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State of Utah Natural Resources
Division of Oil, Gas, and Mining

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BLM - Vernal District Office